The Innovative Air Mobility Hub
eSORA
User Guide

Issue 1

29 September 2025

The IAM Hub is a Flagship Action of the Drone Strategy 2.0 and has received funding from a Contribution Agreement with the European Commission.

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1 Introduction

1.1 Background and objectives of the IAM Hub

The **Sustainable Innovative Air Mobility (IAM) Hub** is a unique digital platform that was initiated by the European Parliament and the European Commission as part of the Drone Strategy 2.0 Flagship 7 to address societal concerns and support the implementation of new forms of aviation in a safe and sustainable manner. The IAM Hub aims to facilitate the safe, secure, efficient, and sustainable implementation of innovative air mobility practices, such as drones and electric vertical take-off and landing (eVTOL) vehicles, in Europe. The IAM Hub connects various stakeholders in the European system, including cities, regions, national authorities, the EU, operators, and manufacturers, and provides them with comprehensive and up-to-date information, guidelines, and data on IAM-related topics. The IAM Hub also supports the harmonization and implementation of EU rules and regulations, the promotion of transparent and robust information on noise and sustainability, and the communication of the benefits and impacts of IAM to the public.

The **overall objective** of the **IAM Hub** is to enable a safe, secure, efficient and sustainable UAM implementation in Europe as foreseen in the Drones Strategy 2.0 by providing an interactive online platform ("IAM Hub") for IAM ecosystems.

In collaboration with the IAM Hub Task Force, **four specific objectives were defined:** (1) to connect IAM communities, (2) to communicate on IAM benefits and impacts, (3) to centralise IAM Data and (4) to support IAM implementation and digitalization in EASA Member States. The Task Force also helped to define the IT architecture, user needs and task prioritisation to develop the IAM Hub in the initial two phases.

The IAM Hub offers **nine modules**, divided between **Public** and **Member Zones**:

Public Zone:

1. **Knowledge & Guidance:** Centralized information on drone/eVTOL design, rules, and societal benefits
2. **The Drone Rule Navigator:** Interactive tool for regulatory compliance
3. **The Drone Economy Dashboard:** Statistics and contact points for UAS operations across EASA Member States
4. **Harmonised Population Density Data based on EASA guidelines:** Ground risk assessment tool using JRC/Copernicus data

Member Zone:

5. **Drone Database & Design Declarations:** Central data base for drone designs and compliance documentation
6. **Operational Declarations**
7. **eSORA:** Automated risk assessments and authorization tools
8. **Cross-Border Operations:** Guidelines and tool for CBO
9. **Geographical Zones (GZ):** Harmonized geographical zones for UAS operations

This user guide is covering the eSORA module of the IAM Hub.

1.2 What is eSORA

The eSORA tool (electronic Specific Operations Risk assessment) a module of a broader platform IAM (innovative air mobility) hub, that supports different UAS and advanced air mobility topics.

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The eSORA tool has been developed to automate and standardise the SORA 2.5[1] process. It enables UAS operators to collect and present the evidence required by the National Aviation Authority (NAA) in order to obtain an operational authorisation for UAS operations in the *specific* category, in accordance with Commission Implementing Regulation (EU) 2019/947.

On the basis of the evidence submitted, the NAA assesses the acceptability of the proposed mitigation measures and confirms the final Specific Assurance and Integrity Level (SAIL). This stage corresponds to Phase 1 of the SORA 2.5 framework.

These guidelines are intended to assist UAS operators in the effective use of the eSORA tool. They provide step-by-step instructions on how to use the application and for creating representative case scenarios while facilitating the automated generation of the required SORA 2.5 documentation and risk-assessment outputs.

In this document the term UAS (unmanned aircraft system) or UA (unmanned aircraft) when we refer to the flying part only, will be used instead of the more colloquial 'drone'.

At present, many applications for operational authorisation contain errors or omissions, largely due to misunderstandings of the UAS regulations and of the SORA process. As a result, NAAs must dedicate significant time to reviewing applications and advising UAS operators on how to submit properly completed documentation with all required evidence. This slow down the authorisation process and increase the workload for NAAs and UAS operators.

The eSORA tool addresses these challenges by standardising applications and input data, thereby reducing the time needed to issue an operational authorisation. eSORA automatically performs key calculations and assessments, enabling the preparation of higher-quality applications and supporting a greater number of operations.

If eSORA tool technical problems encountered, you can use the internal chat function to interact with the IT support.
For more information on SORA process and regulatory framework see Easy Access Rules for Unmanned Aircraft Systems.

To contact local National Aviation Authority for further information, see the list of NAA website by country.

[1] AMC 1 Article 11 to Regulation 2019/947. https://www.easa.europa.eu/en/document-library/easy-access-rules/online-publications/easy-access-rules-unmanned-aircraft-systems?page=4#_DxCrossRefBm153270048

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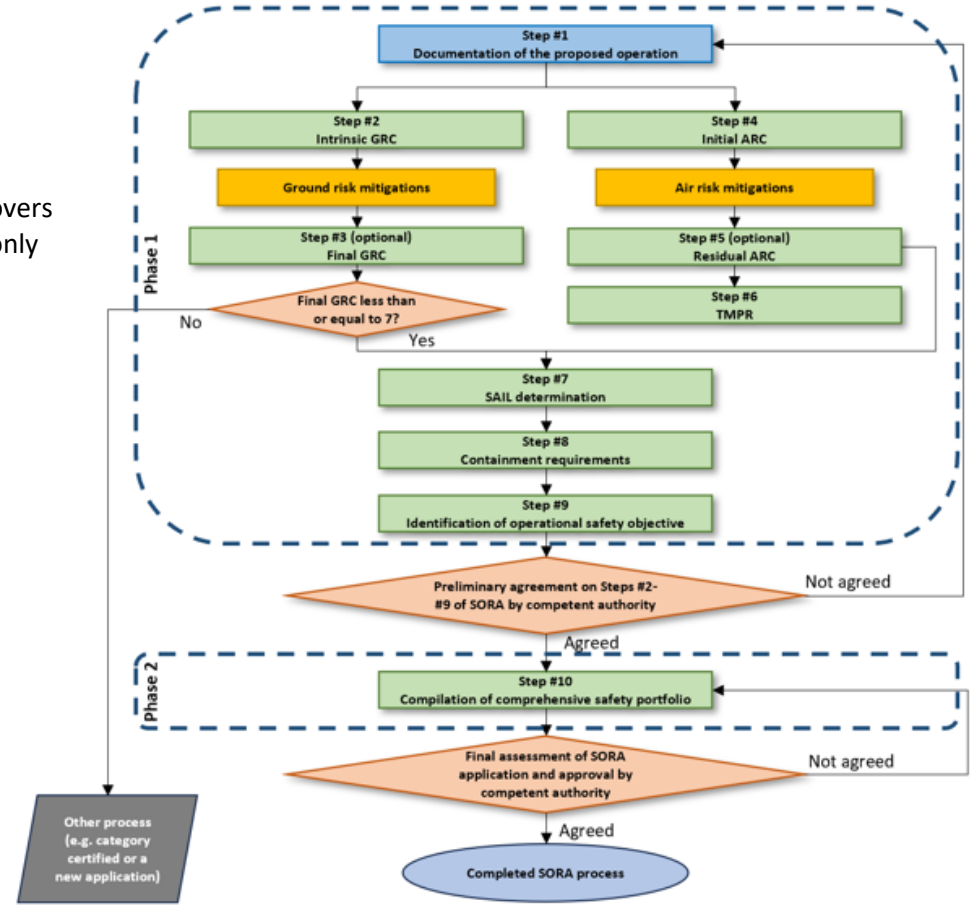
eSORA covers phase 1 only



The phases of the SORA process

1.3 The IAM Hub modules

The IAM hub implements multiple modules such as:

- critical area calculation of a UA;
- operational declaration for a standards scenario;
- product registration of a UAS;
- eSORA;
- cross border operation;
- rule navigator (available also in the public site).

These guidelines refer exclusively to the eSORA module. However, this module is integrated with the product registration functionality, which is available only to registered UAS designers (see point 1.3).

When a designer decides to make a UAS available to European UAS operators, the UAS may be registered and all relevant information—such as performance data and technical characteristics—will be stored in a central database, together with all evidences and declarations.

Registered UAS designers are permitted to register the following:

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- UAS with a class label (C1 to C6);
- UAS for which a statement of compliance with the means of compliance (MoC) published by EASA has been issued by the designer (for UAS operated up to SAIL III);
- UAS with a DVR (design verification report), to be operated in SAIL IV;
- UAS with a type certificate or restricted type certificate[2], to be operated in SAIL V and VI;
- Kits providing additional functions to a UAS, for which a statement of compliance with the means of compliance (MoC) published by EASA has been issued by the designer or a DVR is issued by EASA.

In this way, when creating an eSORA case, the UAS operator can simply select the registered UAS (and, where applicable, the relevant kit). The system will then automatically retrieve all technical data provided by the designer in order to calculate the parameters required for the risk assessment (e.g. the operational volume, the ground risk buffer size etc.). Only the UAS performance that may be modified by the UAS operator will be displayed in eSORA (e.g. the maximum speed or height at which the UAS is designed to be operated, such that the UAS operator may limit the operation to a lower value resulting in smaller operational volume and ground risk buffer). No other technical data provided by the designer will be visible to UAS operators. Also the evidences developed by the UAS designer may be retrieved directly by the NAA in the IAM hub, without the need to be shared with the UAS operator.

1.4 Registration on the IAM HUB

The IAM Hub consists of two areas: a public area and a restricted-access area. The eSORA tool is located in the restricted-access area and requires user registration.

Users may register themselves in one of the following categories:

- NAA;
- UAS operators;
- UAS designer;
- municipality.

Access to specific modules within the IAM Hub depends on the user's registration category.

The eSORA module will be accessible by NAAs and UAS operators.

1.5 Abbreviations

ARC – Air risk class

BVLOS – Beyond visual line of sight

DVR – Design verification report

eSORA – Electronic specific operations risk assessment

fGRB – Final ground risk class

GRC – Ground risk class

[2] Issued according to Annex I (Part 21) of Regulation (EU) 748/2012.

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IAM – Innovative ais mobility

iARC – Initial air risk class

iGRC – Initial ground risk class

MoC – Means of compliance

NAAs – National aviation authorities

rARC – residual air risk class

SAIL – Specific assurance integrity level

SORA – Specific operations risk assessment

UAS – Unmanned aircraft system

UA – Unmanned aircraft

VLOS – Visual line of sight

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2 General information

On the upper side of the eSORA screen you will see on top a bar with a visual representation of 4 stages processes as depicted below

During the eSORA process you will know from this bar in which stage you are. The SORA phases associated to each stage are listed below

Start	Operation	Mitigation	Report
1. Log in to the IAM HUB partner zone	1. Enter UAS details	1. Mitigate ground risk	Download generated report
2. Start eSORA case	2. Enter flight operations information	2. Determine and mitigate air risk	
	3. Determine flight geography on map	3. Determine applicable SAIL	
		4. Determine UAS containment requirements	
		5. Review applicable OSOs	

For example the picture below show the case when The “Start” stage is complete (for example after the case was open) and you are in “Operation” stage.

When a field has an ‘*’ this means that the information is mandatory

2.1 IAM Hub partner zone main page

After log in, the system will display the main partner zone “IAM Hub platform page”. It is made of two areas: the 1 Navigation Panel, allowing to access to the different modules provided by the platform and the 2 Main area containing the announcement bar and a list of the latest task performed by the user.

For example, here you will the list of the most recently completed or pending tasks (e.g. eSORA cases completed or not finalised yet).

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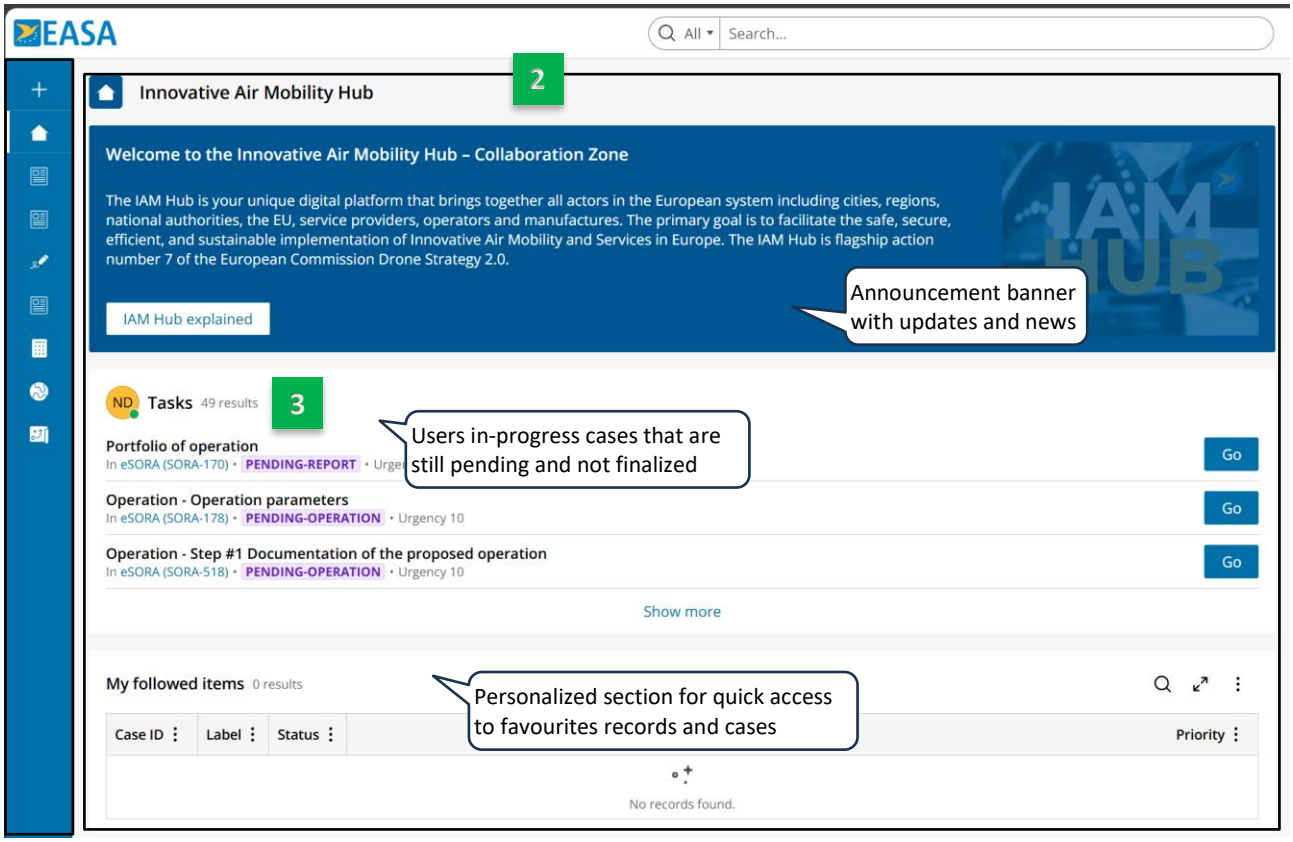
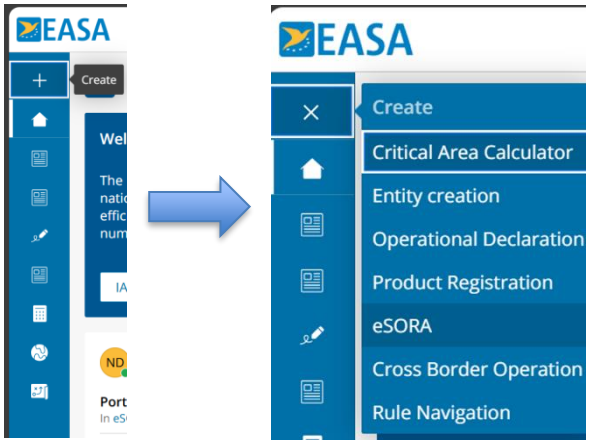


2.1.1 The navigation panel



On the 1 Navigation Panel

By clicking **"+"** symbol or **"Create"** button, the drop down or pop out menu will appear with several options to choose from.

To start the eSORA case, click **"eSORA"** from the list.

+ Create → eSORA

This will open a new eSORA case creation module.

As alternative you may open an unfinished SORA case that you will find in 3 Tasks

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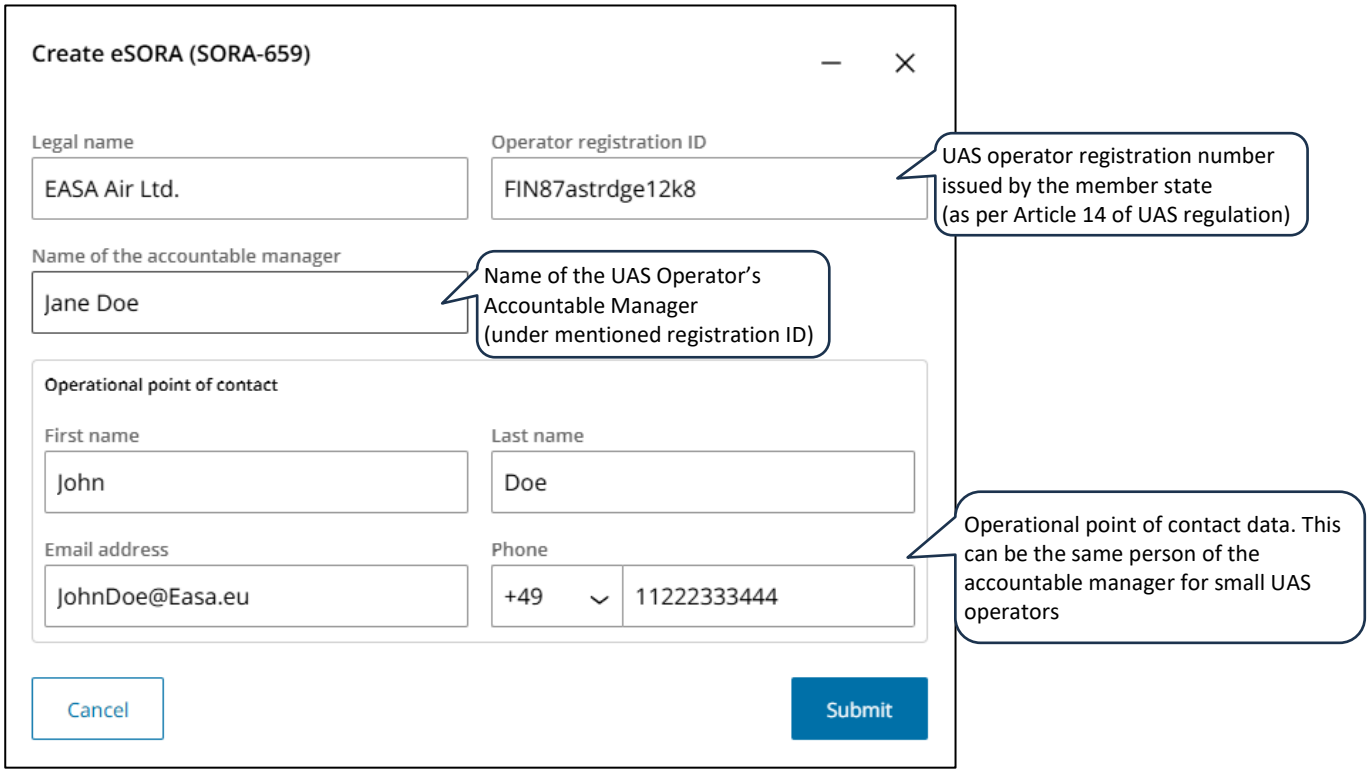
3 Starting eSORA case

3.1 eSORA case creation module

The first window appearing contains the details regarding the UAS operator (user) as registered in the database.

Verify or input the required UAS operator information.



After confirming the details, click **Submit** to create the eSORA case.

> **Note**: these fields will normally pre-fill with profile information (as provided during registration).

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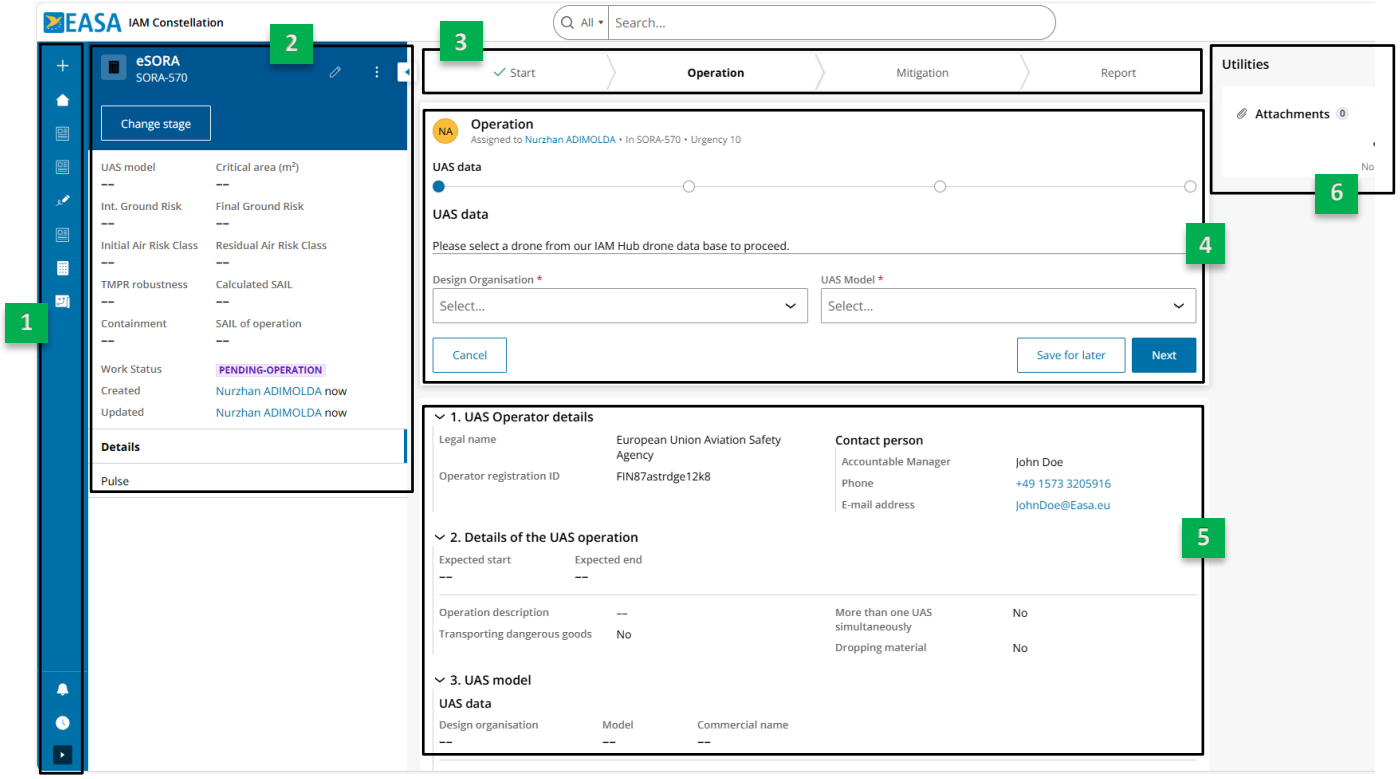
3.2 eSORA module interface overview



The eSORA interface will load with the new case, displaying:

- Same 1 **Navigation panel** on the left.
- 2 **Case summary window** for quick reference that will update every time a step is completed, with the added information.
- 3 **Stages progress bar** indicating the stages *Start, Operation, Mitigation, Report.*

  The "Start" stage it is shown as complete since the case was open. "Operation" stage is now the active one.
- 4 **Input area** is a main area for inputs which will be changing windows after each step.
- 5 **Application overview**. This section is organised as the operational application form. It will update with information along each step is finished and will be presented in the end of SORA case for confirmation.
- 6 **Attachments** area, which will display attachments uploaded during information input and draft application in the end.

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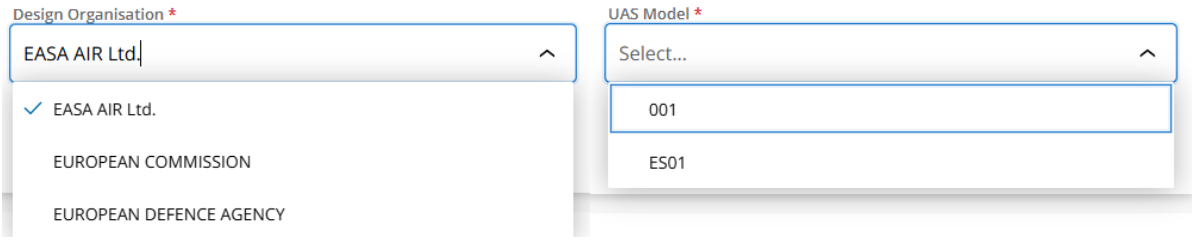
3.3 UAS data and flight description

3.3.1 Selecting the UAS

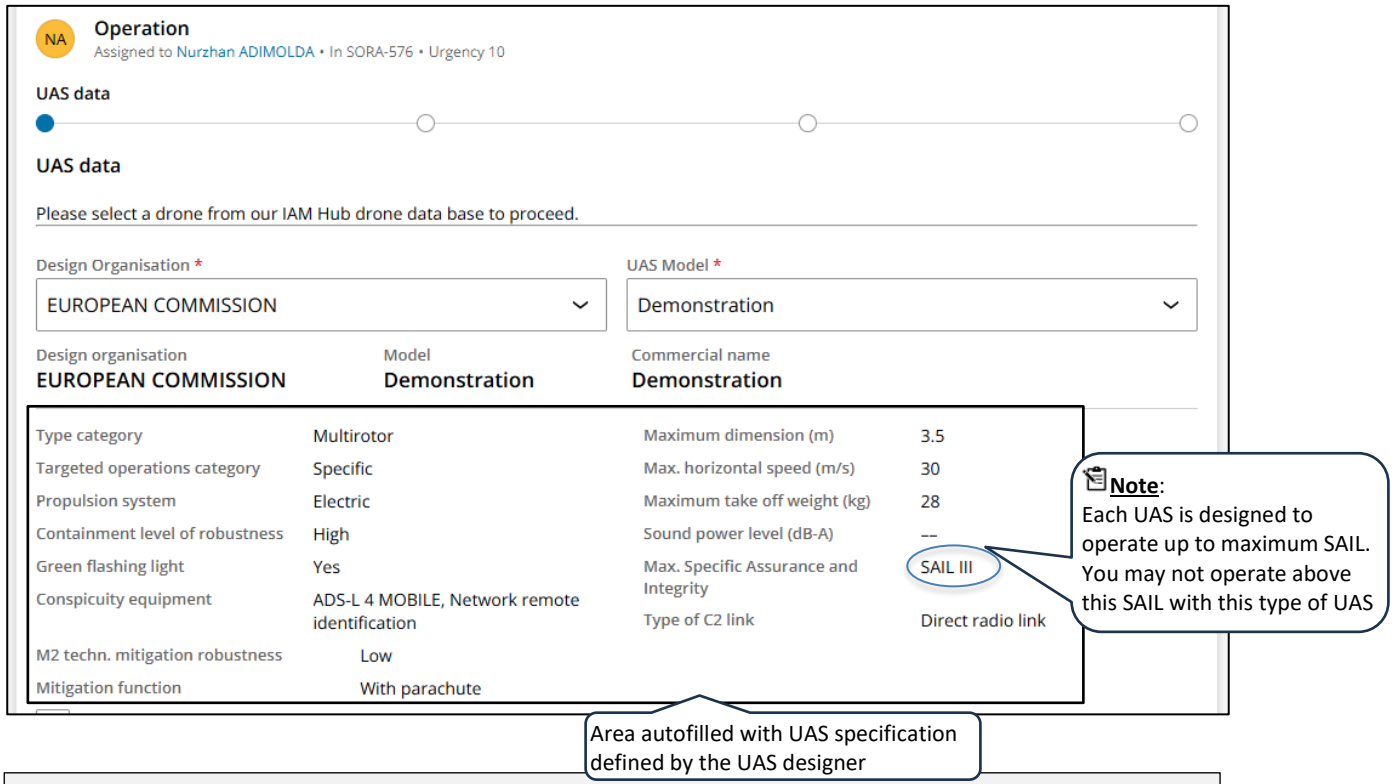
On the dropdown menu in the 4 **Input area**, select or search the UAS that will be used in the UAS operation.

As explained in the introduction, the eSORA is integrated to EU-approved UAS database and will show the available UAS. This will allow system to further consider UAS characteristics in calculations.



Once the UAS designer and model are selected, the tool will automatically populate the relevant technical characteristics (max. take-off weight, type, propulsion system, max. speed, category) in to the case.

See example below:



Note: if some UAS information is missing or incorrect, notify the design organisation to update the UAS records through Product Registration Tool.

After verifying information, click **Next** to continue.

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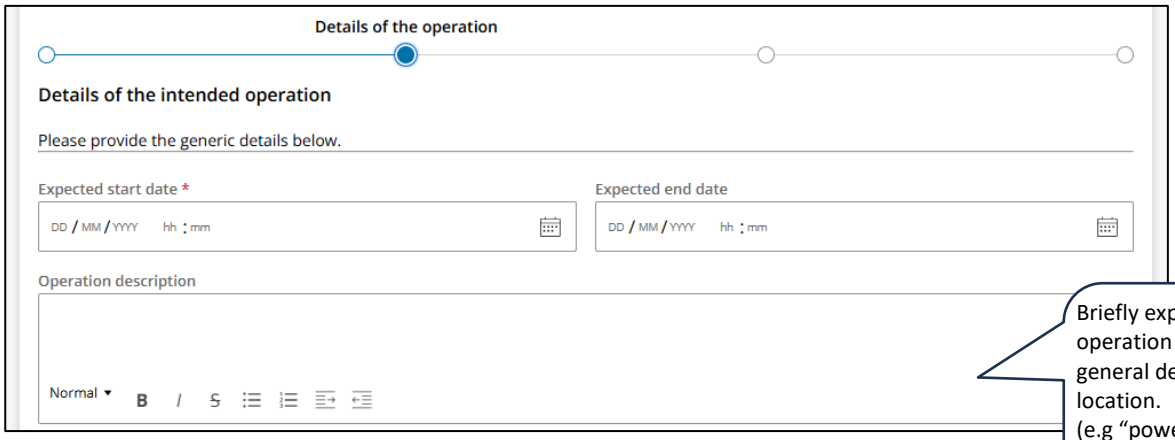
3.3.2 Operation details (flight description)

The next window requires to provide the basic details of your intended operation. This should contain the date when the UAS operation is intended to be conducted, general description of the UAS operation and special operational aspects.



Indicate additional operation parameters with check boxes:

Transporting Dangerous Goods. Check this if the UAS will carry any dangerous goods (e.g., hazardous articles or substances, explosives, gases, flammables, radioactive, toxic or corrosive substances etc.).

- ***If selected,*** list the dangerous goods being transported and provide the procedures regarding the transport for dangerous goods explaining how you ensure that no additional risk is posed to third party. Attach supporting evidence or documentation (for example: approvals, handling procedures, instructions).

Dropping Materials. Check this if the operation includes dropping or releasing any materials/liquids from the UA (for example, food or parcel delivery, chemicals spraying).

- ***If selected,*** describe the materials being dropped and upload supporting documents (approvals, handling procedures, instructions) to explain how it can be operated in a safe manner.

Does the remote pilot control more than one UA simultaneously? Check if a single remote pilot will be operating multiple UAS simultaneously during operation.

- ***If selected,*** specify the number of UA controlled by one pilot. This option is available only if the designer indicated that the UAS has been designed with a level of automation reducing the remote pilot intervention.

Once all details are provided, click **Next** to proceed. This will finish the general information and move to SORA Step #1.

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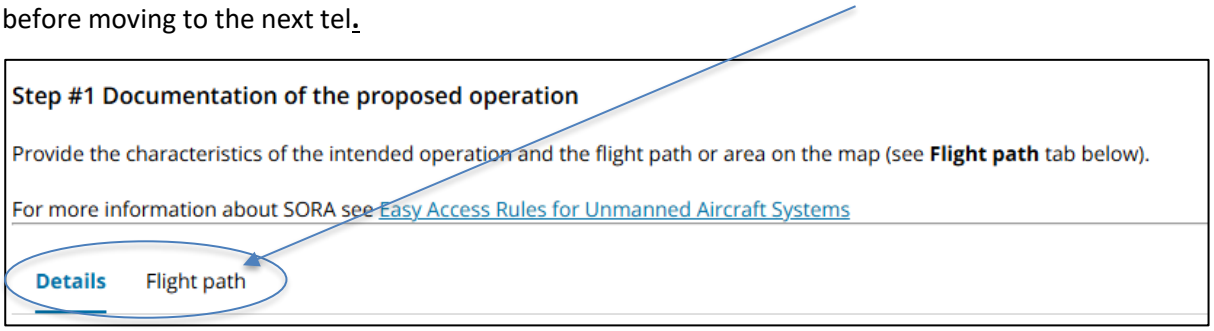
4 SORA documentation Step #1

After the general information have been added the 9 steps of the phase 1 of the SORA process may be started.

SORA step #1 consists of two sub sections (tabs) **Details** and **Flight Path.** In this section the UAS operator is required to provide all the information required to calculate the operational volume, ground risk buffer, adjacent area, the additional information defined in the application form and in order to determine the initial ground risk.

The UAS operator is required to first insert all the data included in the **Details** tab and then **Flight Path** tabs, before moving to the next tel**.**



4.1 Details tab

On the **Details** tab of Step #1 provide data about flight characteristics. The value will be already prefilled with the maximum values defined by the designer during the registration of the product. The UAS operator is only allowed to reduce them. The UAS operator is required to reflect in the operations manual all the values listed here.

Minimum operational flight height AGL (m) * 20	Height of flight geography (m) * 100
Minimum operational flight height AGL (m) – i.e the minimum height the UA might fly during normal operating conditions, except during take off and landing phases.	**Height of flight geography (m) –** the maximum height of the operation.
Max. operational speed (m/s) * 25	Wind speed (m/s) * 10

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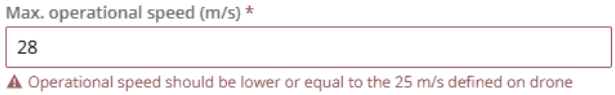
Max. operational speed (m/s) – maximum speed UA will reach during operation.

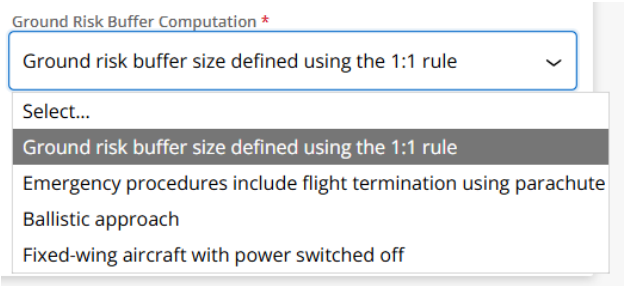


Tip: In case of seeing this error, adjust the Max. operational speed within the range set by designer. The error message will hint the exact max. speed set by the designer for used UAS.

Wind speed (m/s) – under which it is planned to conduct the operation safely.

If exceeded, system will show an error "Wind speed should not exceed the limit defined by UA designer". Input a lower value within the limit set by manufacturer.

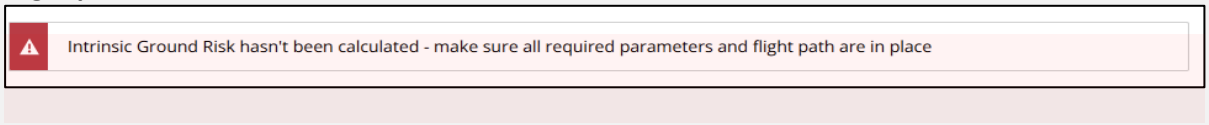
Manual procedures reaction time (s) – estimated reaction time for the remote pilot to initiate an emergency or contingency procedure.



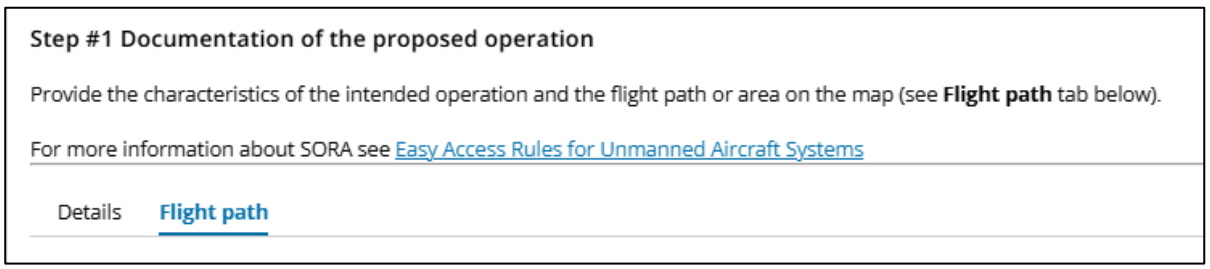
Ground Risk Buffer Computation – select the appropriate methodology for the operation on the ground risk buffer determination.

Note: EASA is aware that to date several UAS operators, when carry out SORA application rely on the simplest way of calculating the ground risk buffer (i.e. applying 1:1 rule, meaning the buffer zone equals the altitude). Automated eSORA tool offers more alternatives by making complex calculations for the user, based on the inputs. Depending on the type and characteristics of the selected UAS not all methodology may be available. The UAS operator is required to define which one is most appropriate for its operation.

Tip: an error "*Intrinsic Ground Risk hasn't been calculated – make sure all required parameters and flight path are in place*" or "*missing Flight Path*" might appear. It indicates that user haven't completed **Flight path** tab.



Once all fields are filled in, click the **Flight path** tab of the same Step #1.



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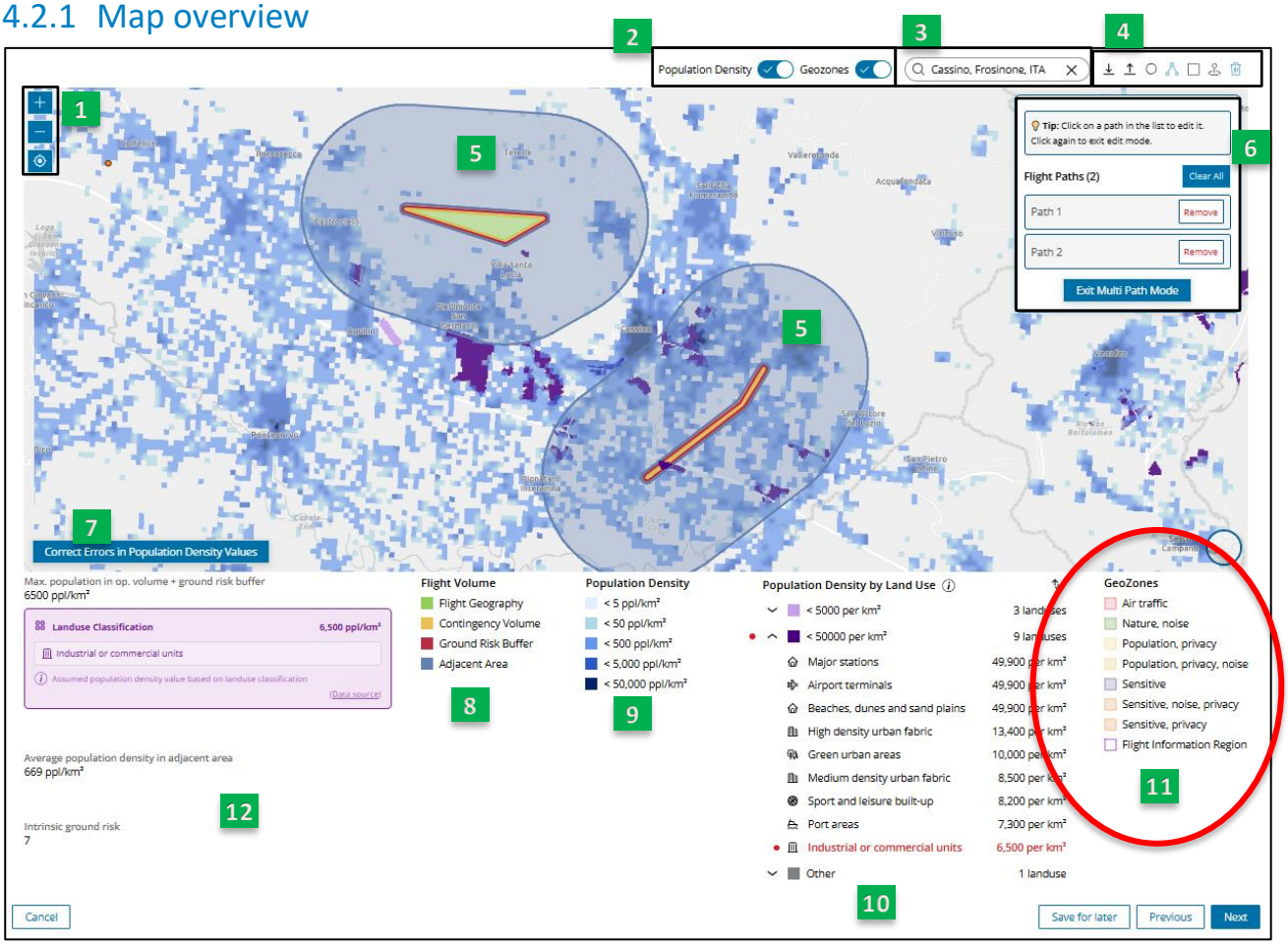
4.2 Flight path tab

In the Flight path tab, please define the geographical area of the operation using an interactive map.

By drawing the area where you intend to operate, the tool will assess the population density of the overflown area in order to calculate the exact ground risk class (GRC).

The system will display population density and geographical zones maps. It may happen that not for all EASA states this information may already be available.

4.2.1 Map overview



The interactive drawing map displays:

- 1 **Zoom/current location** to zoom in or zoom out or centre in the location where you are (in order to enable this last function you need to set your system to share your location.
- 2 **Layers filter** with Population density overlay and Geozones overlay. Here you may decide to display only one of the two to simplify the reading of the map.
- 3 **Search** function to search for a location.
- 4 **Map drawing tools** with circle (radius) ○, a lines and polygon □. Use this tool to draw the flight path or the area of operation where you intend to operate using the feature that better suits your needs.

  Geozone information pin and clearing of drawn flight path.

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Importing and exporting map file in GeoJSON and KML format .

The flight path or the area of operation can be redrawn by clicking “clear” symbol.

> **Tip**: to reduce the GRC try adjusting the flight geography to affect less population, which will likely lead to lower Ground Risk Class.

- 5 **Operational area, ground risk buffer and adjacent area** when drawing a flight path or area of operation with the map drawing tool, the system will automatically display the flight geography, contingency area, ground risk buffer and adjacent area. The size of all the areas is automatically calculated based on the mathematical model defined in SORA 2.5 and the parameters indicated in the previous steps. The system allows to draw multiple operational areas.
- 6 **Flight paths** list of all flight paths or area of operations drawn.
- 7 **Correct Errors in Population Density values** If you have evidence that the maps has a mistake (for example an area recently developed to a different use not yet shown on the map, so the population density is actually changed) then you can use this feature. This change will be approved by the NAA and a log will be created. For more information see paragraph 4.2.2.
- 8 **Flight volume legenda** colour code explanation of the flight volume using the definition of SORA semantic model.
- 9 **Population density legenda** colour code explanation of the population density values derived by census data.
- 10 **Population density by land use legenda** colour code explanation of the population density values derived by land use. Census data are based on the information where people are registered. Therefore, the data may be considered accurate for the population in the residential area during night. Non-residential areas are always considered empty. In order to solve this issue, the census data has been complemented with the identification of areas where people may be especially during day (e.g. industrial, commercial, recreational areas etc.)[3]. A red dot on the side of one of the indicated area means that the operational volume or ground risk buffer impact one of these areas.
- 11 **Geozone Legenda** colour code explanation of the available geographical zones.
- 12 **Population density value and initial ground risk class** here you find the calculated value of the maximum population density of the area covered by the operational volume and ground risk buffer; the average popualtion density of the adjacent area and the resulting initial ground riks class (additional details on this will be provided in the next step).

[3] For additional information please refer to the documentation that may be found here https://www.easa.europa.eu/en/domains/drones-air-mobility/operating-drone/statistical-population-density-easa-member-states

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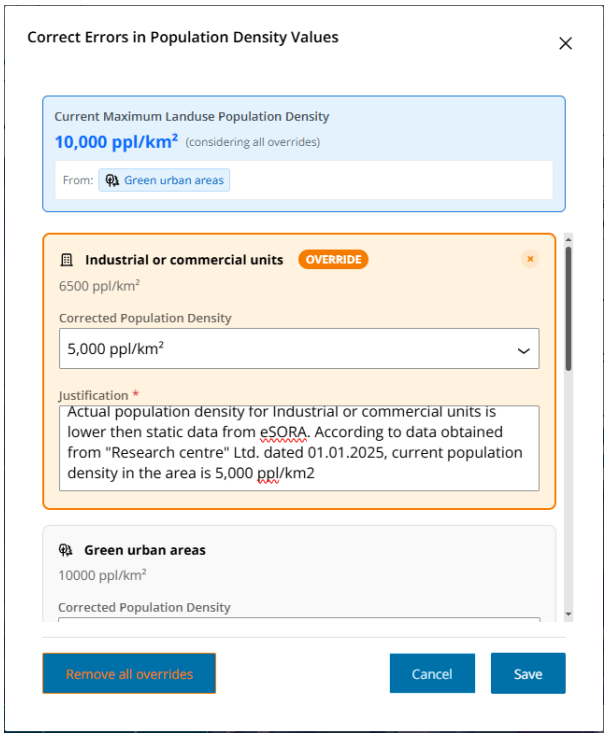
4.2.2 (Optional) Correct Errors in Population Density Values

Since eSORA tool pulls the population density from the static source, it may not reflect the most current population density data.

If user has evidence that the usage of an area has been changed and a different population density should be assigned, eSORA tools allows to Correct Errors in Population Density Values.

To correct/override the data, click the

7 **Correct Errors in Population Density** tool in the bottom left corner of the map.



Correct to the relevant data for each impacted area (e.g Industrial or commercial units; Port areas; Constructions sites; Green urban areas; etc.) and provide a justification/source reference.

Check if the information is provided and click **Save**.

Once flight geography is drawn and all required data, both on the Details and Flight Path tabs are provided, proceed by clicking **Next**.

4.3 Impacted areas

On the next step system will summarise the land use areas impacted by the operational volume, ground risk buffer and adjacent area with the population density values.

Impacted Land Use 5 results

Description	Assumed (ppl/km²)	Overridden (ppl/km²)	Override reason	People outdoor
Urban vegetation	4,000	--	--	No
Industrial or commercial units	6,500	--	--	Yes
Green urban areas	10,000	--	--	Yes
Sport and leisure green	4,500	--	--	Yes
Sport and leisure built-up	8,200	--	--	Yes

Impacted Land Use in adjacent area 8 results

Description	Assumed (ppl/km²)	Overridden (ppl/km²)	Override reason	People outdoor
Urban vegetation	4,000	--	--	No
Industrial or commercial units	6,500	--	--	Yes
Port areas	7,300	--	--	No
Construction sites	3,500	--	--	No
Green urban areas	10,000	--	--	Yes
Sport and leisure green	4,500	--	--	Yes
Sport and leisure built-up	8,200	--	--	Yes
Beaches, dunes and sand plains	49,900	--	--	Yes

Once reviewed, click **Next** to proceed to SORA Step #2.

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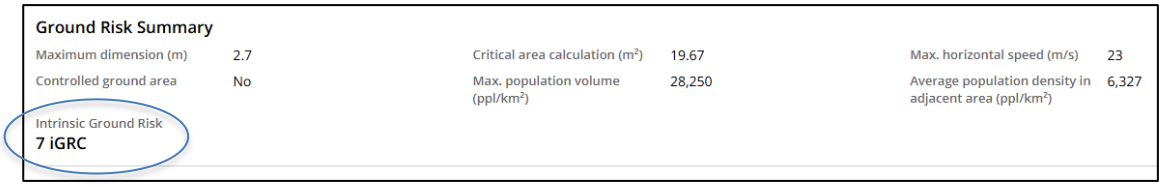
5 Step #2 Intrinsic Ground Risk Class

5.1 Ground Risk Summary

The system will now determine the **iGRC calculation** automatically and provide the summary for the operation. Please be aware the system will already use the calculated critical area for the UAS used based on the formula provided in SORA 2.5 Annex F.

This part does not require any input, it serves as informational review.



For the reference, this will be presented with the ground risk matrix.

> **Tip**: if the calculated iGRC is unexpectedly high try adjusting the flight geography to affect less population or consider switching UAS to less "riskier" one (i.e smaller, slower).
> Further user can still lower the risk on step #3 by proposing mitigation measures.

Once reviewed click **Submit** to proceed. Will finish the stage "Operation" info and start SORA Step #3.

After submitting, the progress bar should show that "Start" and "Operation" stages are complete. System will move on to "Mitigation" stage, starting with SORA step #3

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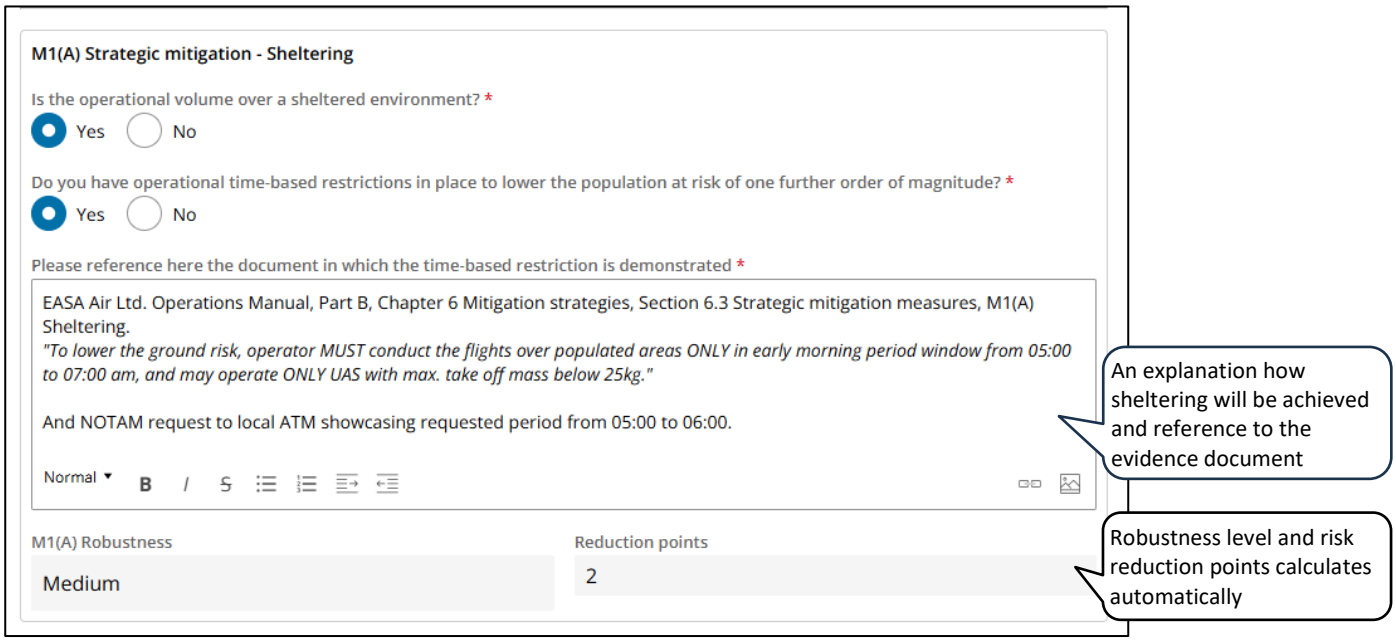
6 Step #3 Final Ground Risk Class determination

Final Ground Risk Class (fGRC) determination focuses on mitigating the initial ground risk (iGRC) identified in Step #2 before.
Applying certain mitigations will lead to a reduction of the ground risk class.

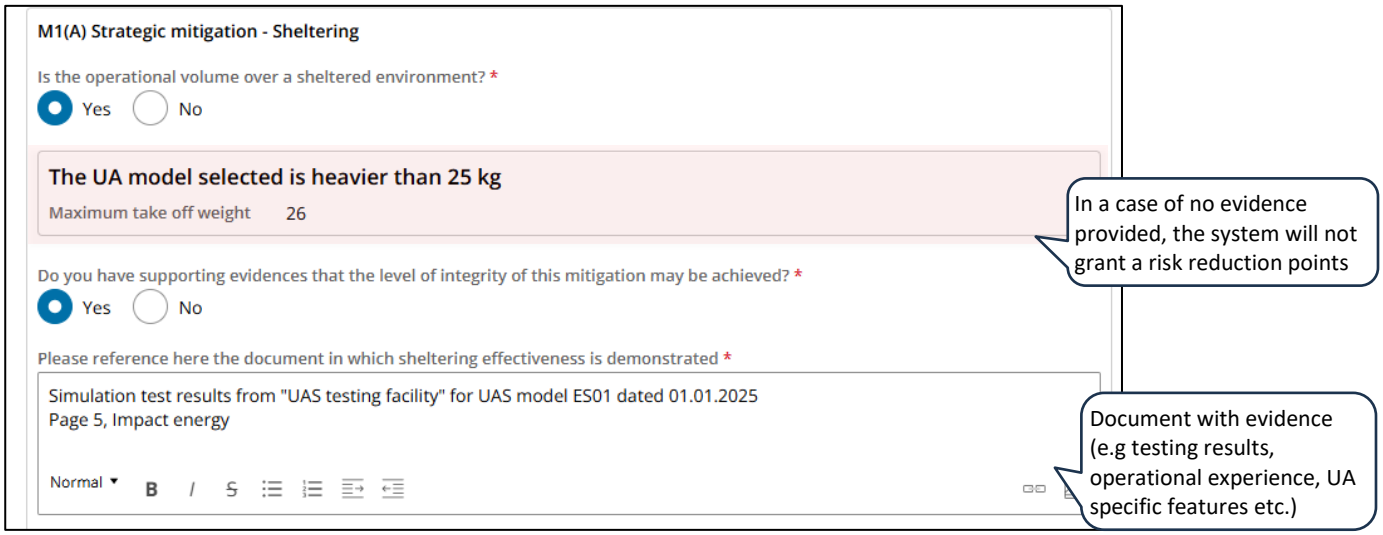
6.1 M1(A) Strategic Mitigation – Sheltering

The sheltering mitigation is for the cases where population of overflown area are sheltered by staying inside of building or any structure so they are protected in case of UA crash.

- ***If selected,*** provide a sufficient explanation of how the sheltering will be achieved. For example if operation conducted on Monday night, when most people stay inside "sheltered".



- ***If UAS MTOM over 25 kg***, the system will point it out and will ask to address an additional question.



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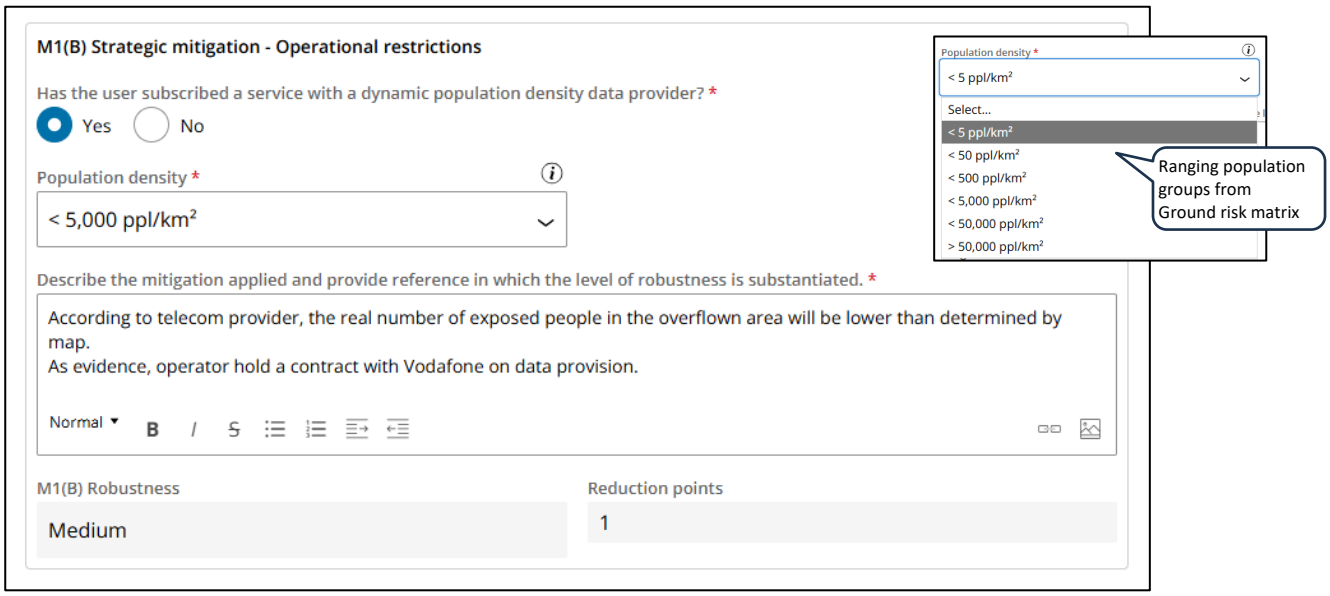
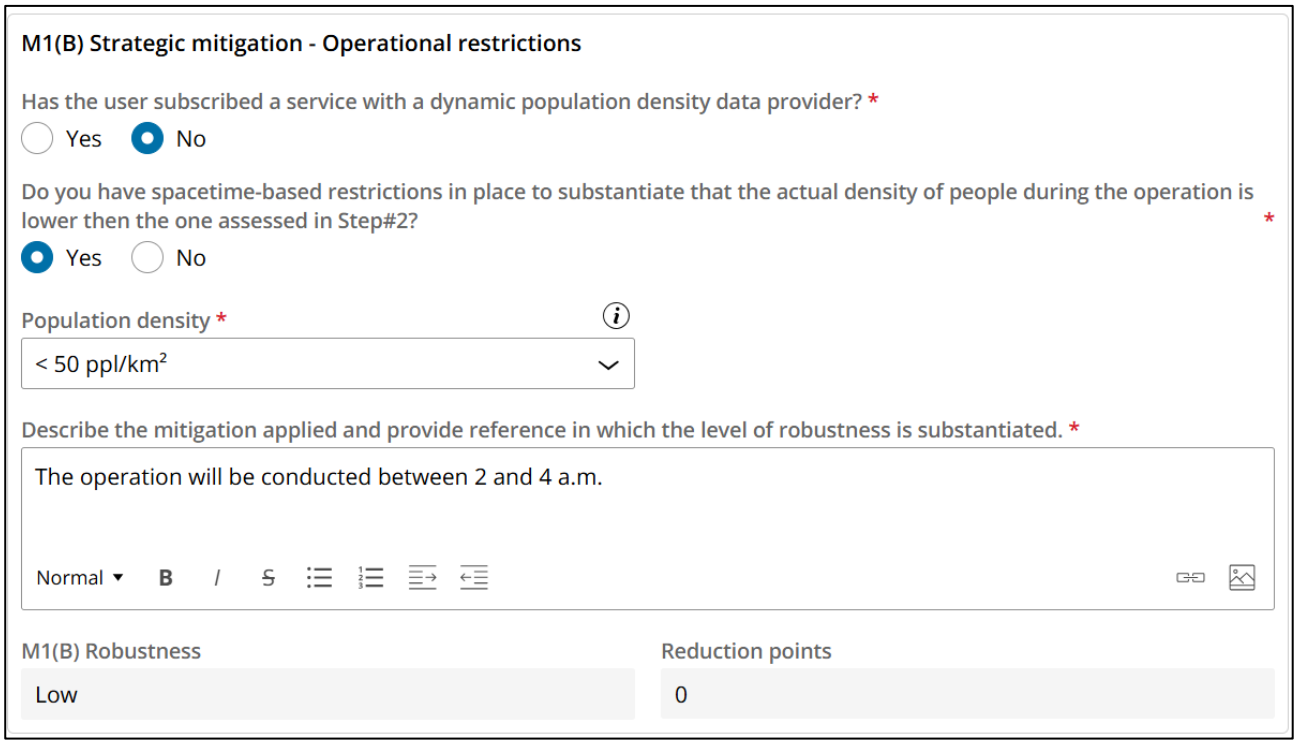
6.2 M1(B) Strategic Mitigation – Operational restrictions

In this section you may indicate you apply some time operational restrictions or use a dynamic population density provider to justify a lower population density data.



- ***if you have a contract with a provider of dynamic population density accepted by the NAA where the operation takes place,*** you can indicate the maximum population density value of the operational area and ground risk buffer at which the operation will take place and include an operational procedure in the operations manual requiring the remote pilot to check before flight that the population density is within the limits.



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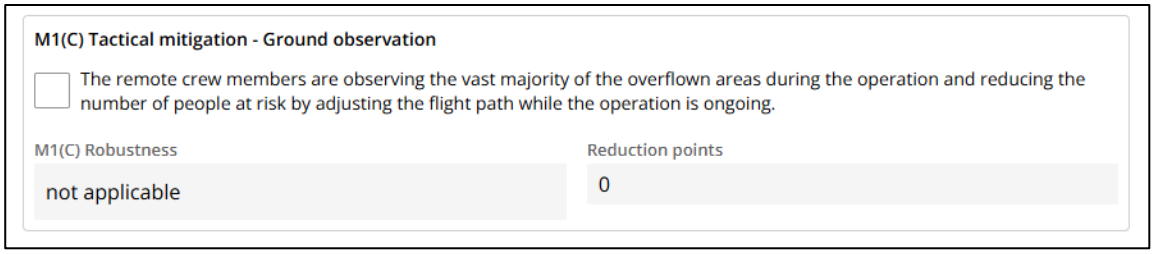
- ***you may decide to include a time restriction,*** in this case you should justify that during that time the population density indicated is valid in all the operational area and ground risk buffer and include the limitation in the operations manual.

Note: user may proceed with no mitigation applied.

6.3 M1(C) Tactical Mitigation – Ground observation

This mitigation is applicable for cases when remote pilot or observers are involved to monitor the ground area in order to reduce the number of people exposed or advise to terminate the flight or change the route if needed.

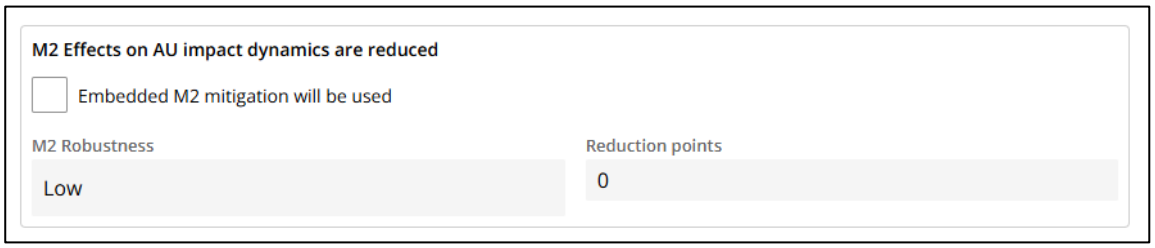
Check the box if applicable. No additional input required.



6.4 M2 Effects on UA impact dynamics are reduced

This option is available only if the UAS you are using, was registered by the designer with a mitigation for the ground risk (e.g. a parachute) or you selected an appropriate kit applicable to such UAS.

Check the box if you are using this function. In this case you will define appropriate operational procedures in the operations manual.



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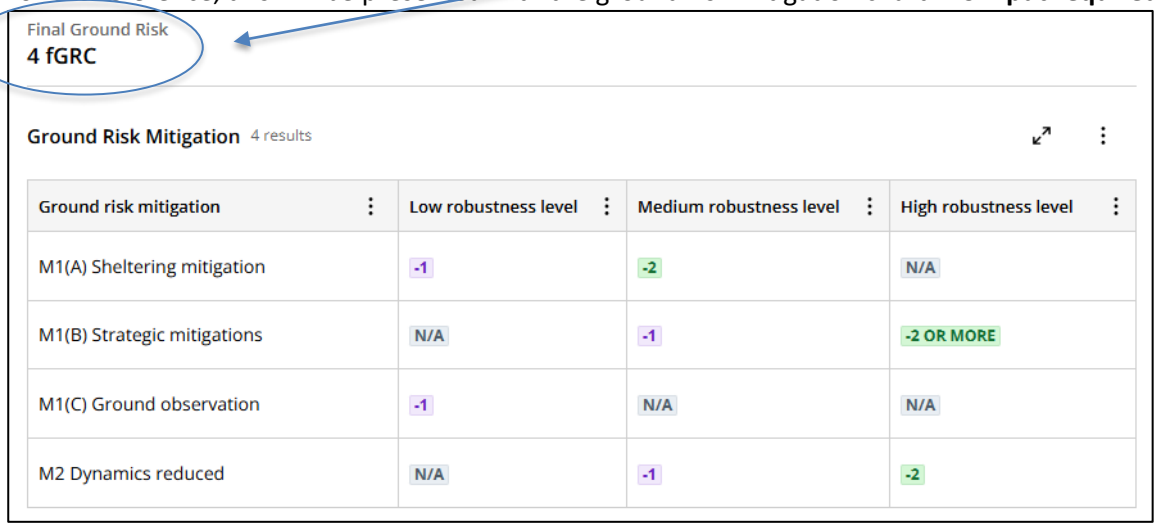
Once the information is provided, the system will automatically determine the **final GRC calculation** and provide the summary for the operation.

For the reference, this will be presented with the ground risk mitigation chart. **No input required.**



Once reviewed, click **Next** to proceed to SORA Step #4.

7 Step # 4 Initial Air Risk Class

In this step you are required to provide information about the airspace where the operation is conducted in order to determine the initial ARC.

Information that needs to be provided:

7.1 Flying close to obstacles

In case the UA will fly close to obstacles (trees, buildings, towers, cranes, fences, power lines, etc.) at a distance as in the figure below, please select this option.

‚Flying next to obstacle will reduce the risk of conflict with manned aircraft and lower the Air risk.

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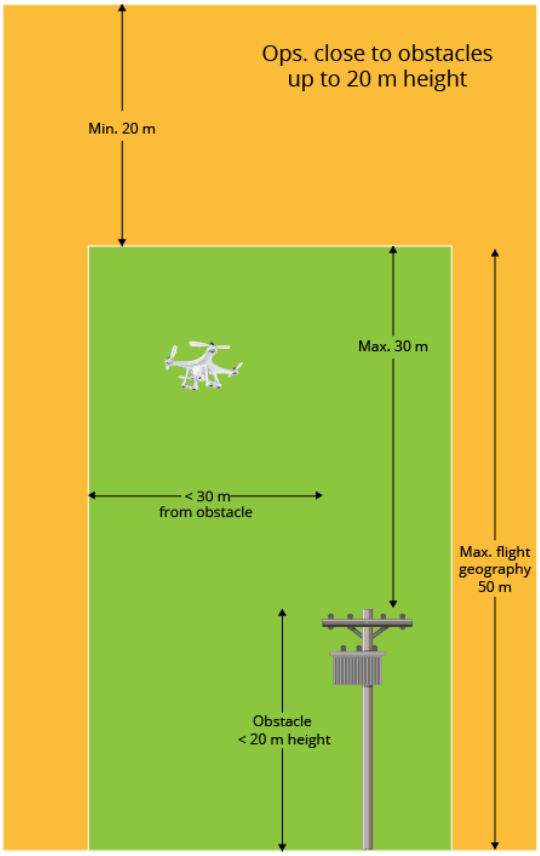
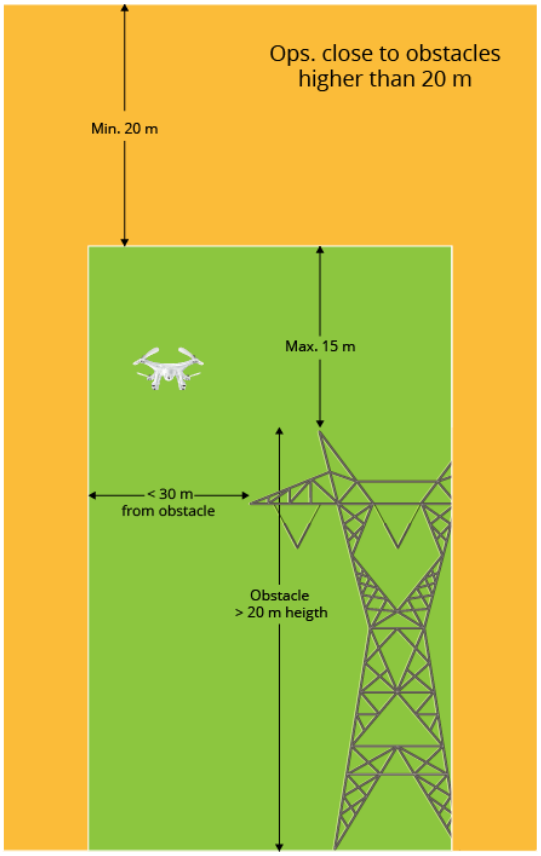
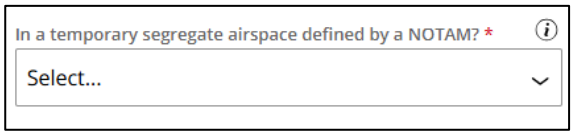
Scenario 1



Scenario 2



7.2 Temporary segregated airspace by NOTAM (Notice to Airman)



Indicate if you intend to require the issuance of a NOTAM specifically for the intended operation.

The NOTAM has the scope to or restrict the area only to your operation avoiding that other aircraft may be present in the portion of airspace where your operation will be conducted.

7.3 Atypical airspace

Atypical airspace is where manned aircraft are very unlikely to be encountered. Typically, this consists in the airspace close to an obstacle (see paragraph 7.1) or temporary segregated (see paragraph 7.2). The NAA where the operation takes place may identify other possibilities. In this case this option may be used and described.

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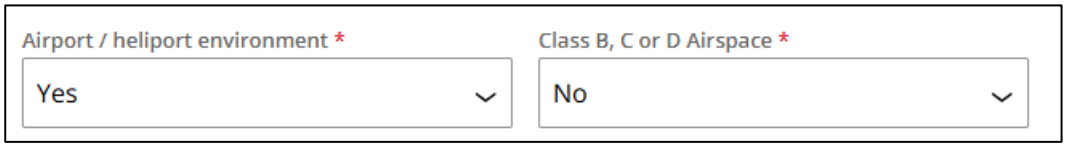
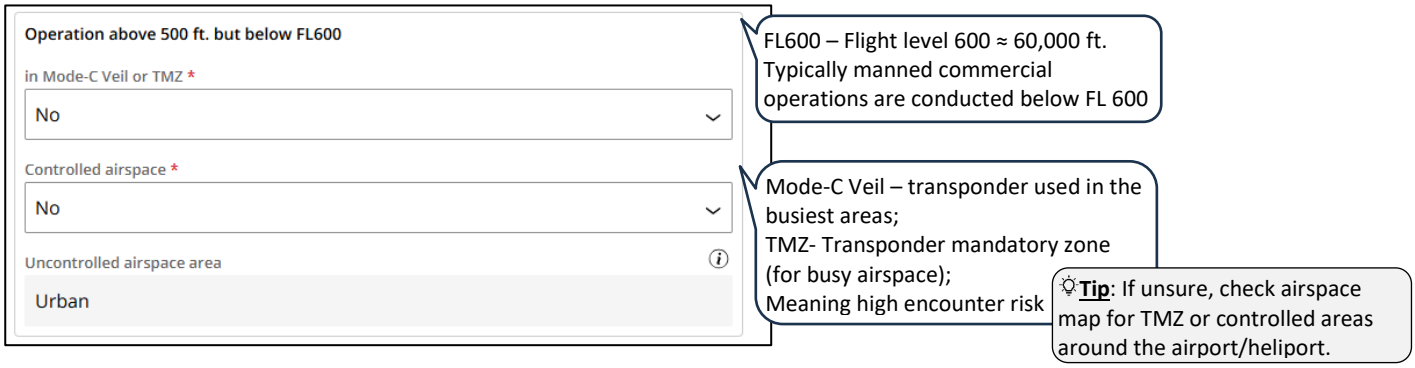
7.4 Type of airspace

— ***If all three options described in paragraph 7.1, 7.2 and 7.3 are clicked as NO***, the system will ask to provide additional information about airspace where the operation is intended.



— ***If YES is selected in airport/heliport environment***, the system will ask to provide more information on the airspace class.

Otherwise the next question will be the following



After answering all questions, the system will automatically calculate the **initial air risk class**.

From ARC-a being the lowest to ARC-d as highest.

To proceed to the next SORA Step #5 click **Next**.

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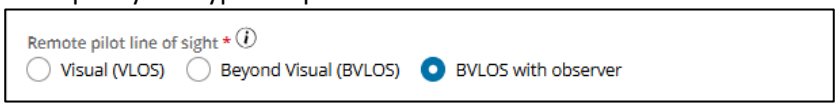
8 Step #5 Air Risk strategic mitigation

To reduce the probability of encountering a manned aircraft, you can apply the strategic mitigation.
At this step, the system will require some information to determine the Residual Air Risk Class.

First specify the type of operation.

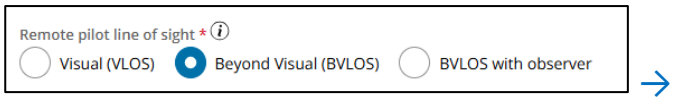


Select 'VLOS' if the UA will be kept at all time at a distance such that the remote pilot will always see the UA and avoid any obstacle.

Select 'BVLOS with observer' if you employ observer(s) that are in direct communication with the remote pilot. The UA must be at all time in view of at list one observer that needs to inform the remote pilot in case the UA is posing risk to other aircraft or obstacles. The operations manual must contain appropriate procedures for communications and definition of responsibilities.

Select BVLOS if the UA will operate without anyone looking at it. The system will display additional option to self-choose for establishing the Residual ARC.

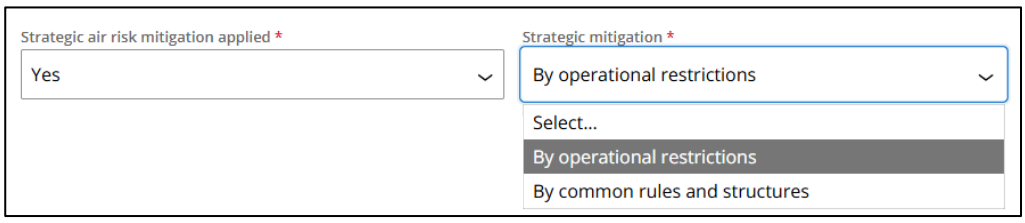
— ***If "BVLOS" option selected,*** the system will provide flexibility in determining the Residual ARC, based on effectiveness of the mitigation measures by operator.



Note: while BVLOS provides certain flexibility, it also requires an operator to provide risk proportionate evidence.

You may decide to apply strategic mitigations to reduce the ARC. For additional information please refer to SORA 2.3 Annex C.

If applicable, choose from options under strategic mitigation drop down menu.



— ***By operational restriction*** – *it* means limit the operation in a portion of the airspace where the encounter rate may be lower (e.g. if the operation is conducted in a controlled zone of an airport (CTR) a lower encounter rate may be at low level in a portion far from the approach or take off path; another example may be during the time of the day where the air traffic is lower.

— ***By common rules and structures*** – for example the operation is conducted in an airspace where U-space is deployed.

The system will ask you to select the residual ARC and to provide a justification.

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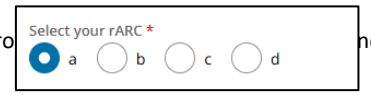
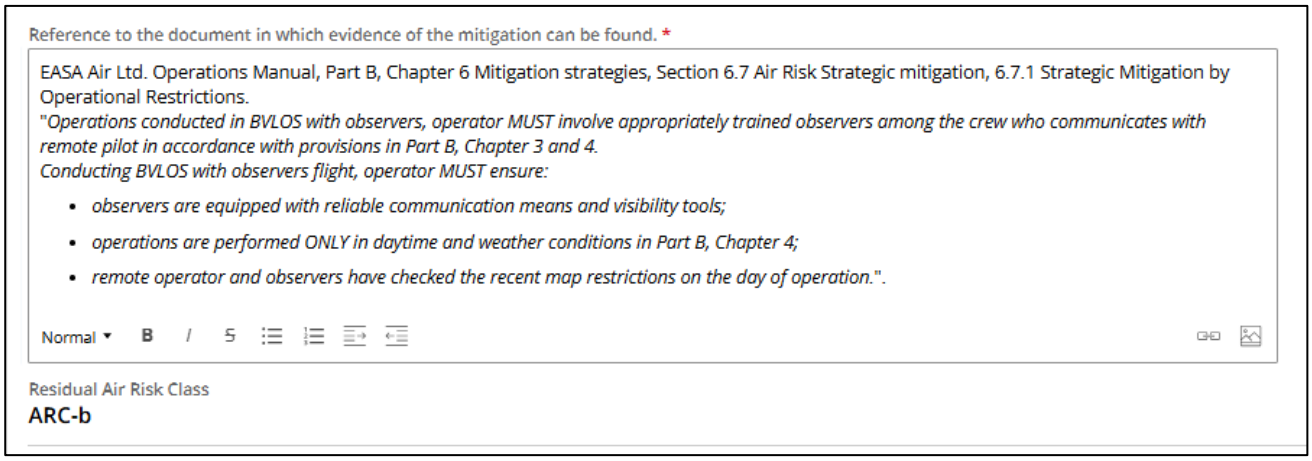
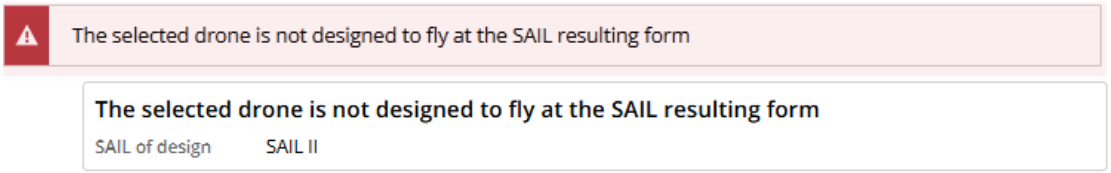


nding from a Contribution Agreement with the European Commission.



Note: user may proceed with no mitigation applied.

At this step, the system performs a check with the maximum SAIL defined by the designer for the selected UAS. If the SAIL resulting so far from the risk assessment is higher, the following error message is displayed:



Tip: If by the end of Step #5, the calculated SAIL for operation exceeds the UAS design limit SAIL, eSORA will block further progress until operational SAIL does not exceed the UAS design SAIL limit

The system will point out the limit of used UAS SAIL of design.

To resolve lower the risk of operation by:

1. Reducing ARC in “Step 5” by proposing stronger mitigations (if the higher SAIL is driven by the air risk);
2. Reducing GRC in “Step 3” by proposing stronger mitigations (if the higher SAIL is driven by the ground risk);
3. Reducing GRC in “Step 1” by changing the flight geography and affecting less population (if the higher SAIL is driven by the ground risk);
4. Selecting different UAS in “UAS Data” that is designed for operations with higher SAIL.

To proceed to the SORA Step #6 click **Next**.

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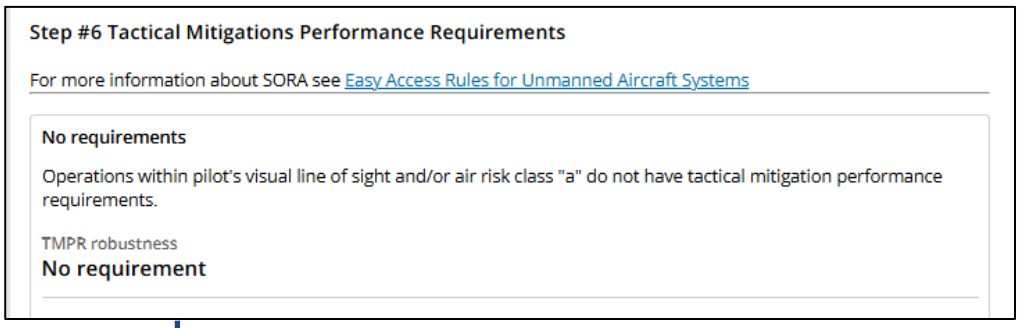
9 Step #6 Tactical Mitigations Performance Requirements (TMPR)

Based on the inputs from Step #4 and Step #5 (ARC), the system automatically calculates the level of robustness for TMPR and list different requirements.

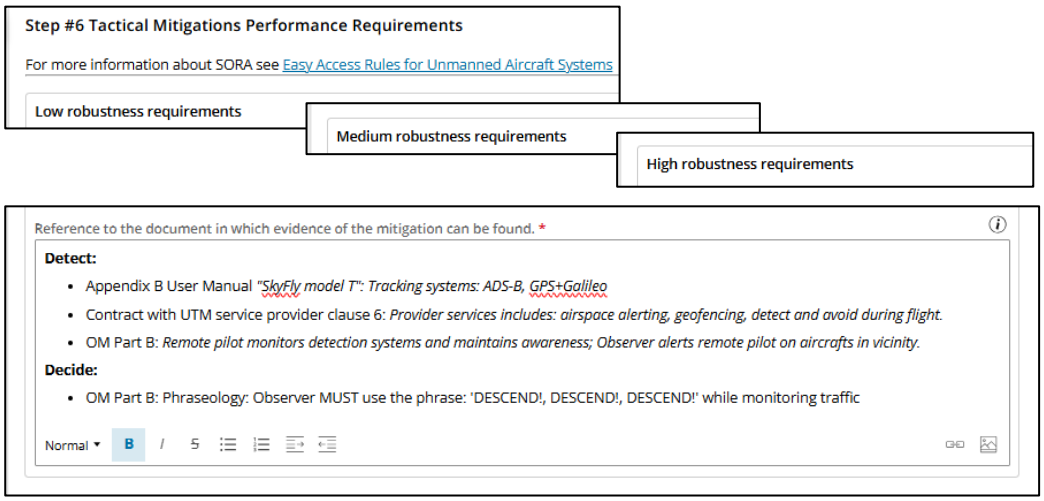
— ***If*** operation planned to be conducted ***in VLOS or ARC-a***, the system will state that there are **No requirements**. No input needed.



— ***If*** operation planned to be conducted ***in ARC-b/c/d***, the system will list requirements for ***Low or Medium or High robustness***, for which operator needs to provide the reference to the evidence.

TMPRs assignment table (not a screenshot from eSORA tool):

Residual ARC	TMPRs
ARC-a	No requirements
ARC-b	Low
ARC-c	Medium
ARC-d	High



Level of robustness indicates the evidence requirement.

For example, “High” robustness will require evidence verification from NAA, whereas for “Low” level of robustness it’s enough to declare compliance with requirements.

Please make sure that in your operations manual you have the appropriate procedures. Reference them in the free text field above.

To proceed to the SORA Step #7 click **Next**.

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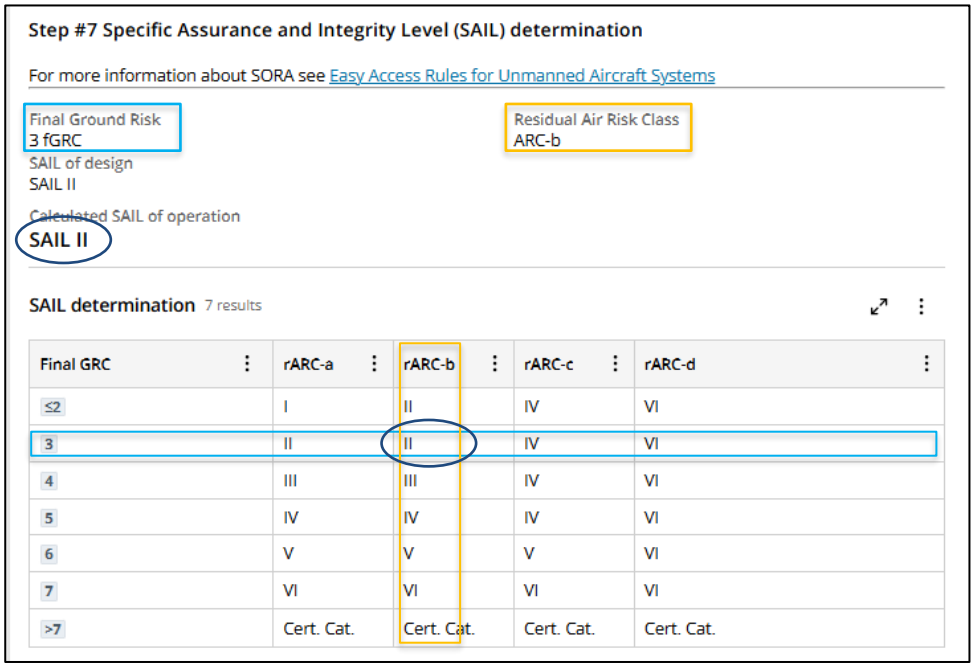
10 Step #7 Specific Assurance and Integrity Level (SAIL) determination

On this step, the system will merge the previously calculated rARC and fGRC and show determined SAIL (ranges from SAIL I to VI). For reference purpose, it will also show SAIL matrix.

The determined SAIL reflects overall risk level of the intended operation.

The SAIL number will indicate the requirements in the next steps. Logically meaning higher SAIL, higher requirements to comply to.

This part does not require any input from you.



If calculated SAIL is higher than expected or planned, return to the previous steps in order to lower the risk by reviewing the mitigations or the characteristics of the area of operation.

Once reviewed proceed to Step #8 by clicking **Next**.

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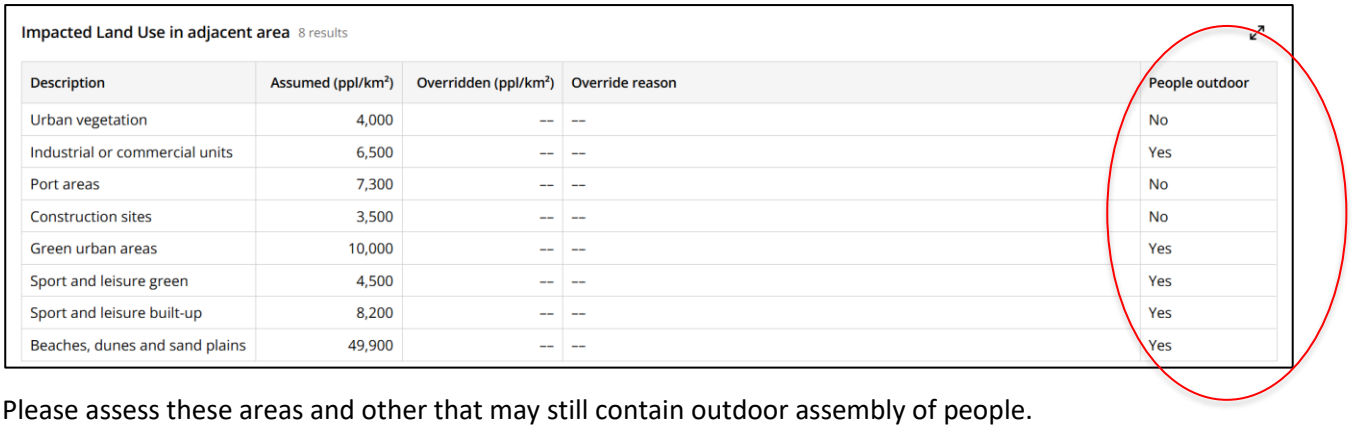
11 Step #8 Containment requirement

This step is to address the risk of flyaway to avoid that the UA exits the operational volume and enters in the adjacent area where different risk may be present.

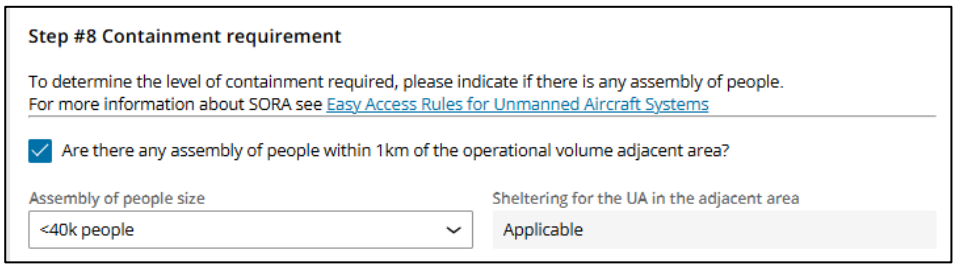
First indicate if there is any assembly of people in the adjacent area. In step #3 the system already gave you an indication of potential presence of outdoor assembly of people, see paragraph 4.3.



Impacted Land Use in adjacent area 8 results

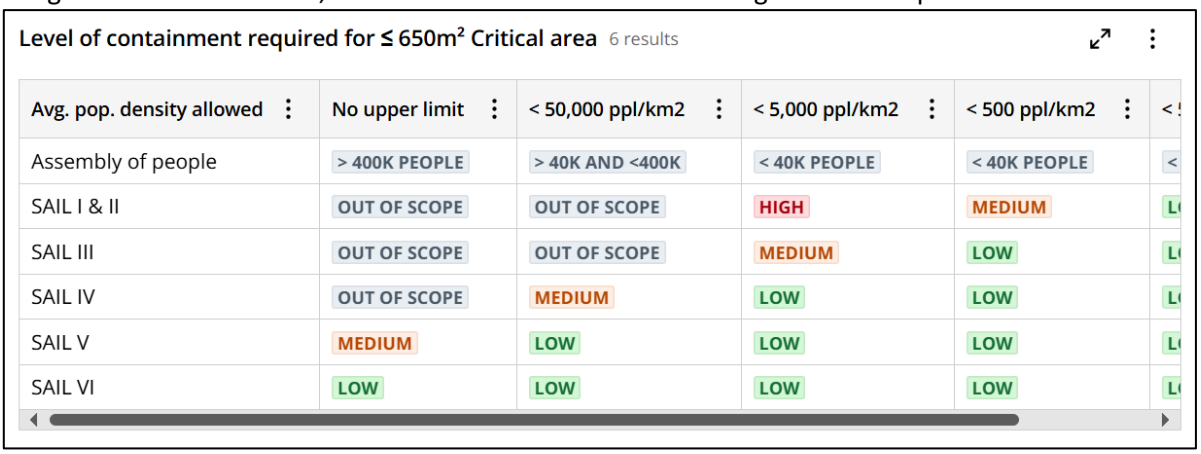
Description	Assumed (ppl/km²)	Overridden (ppl/km²)	Override reason	People outdoor
Urban vegetation	4,000	--	--	No
Industrial or commercial units	6,500	--	--	Yes
Port areas	7,300	--	--	No
Construction sites	3,500	--	--	No
Green urban areas	10,000	--	--	Yes
Sport and leisure green	4,500	--	--	Yes
Sport and leisure built-up	8,200	--	--	Yes
Beaches, dunes and sand plains	49,900	--	--	Yes

Please assess these areas and other that may still contain outdoor assembly of people.



Based on the dimensions of the UA you are using, the system will present the applicable table Level of containment required.

Meaning that in case of failure, the UA crash will not affect area larger than 65 square meters.



Level of containment required for ≤ 650m² Critical area 6 results

Avg. pop. density allowed	No upper limit	< 50,000 ppl/km2	< 5,000 ppl/km2	< 500 ppl/km2	<
Assembly of people	> 400K PEOPLE	> 40K AND <400K	< 40K PEOPLE	< 40K PEOPLE	<
SAIL I & II	OUT OF SCOPE	OUT OF SCOPE	HIGH	MEDIUM	L
SAIL III	OUT OF SCOPE	OUT OF SCOPE	MEDIUM	LOW	L
SAIL IV	OUT OF SCOPE	MEDIUM	LOW	LOW	L
SAIL V	MEDIUM	LOW	LOW	LOW	L
SAIL VI	LOW	LOW	LOW	LOW	L

> — Please refer to SORA 2.5 Annex E for the requirements related to the different level of containment.

If the selected UAS does not suit the containment level, the system will show following error:

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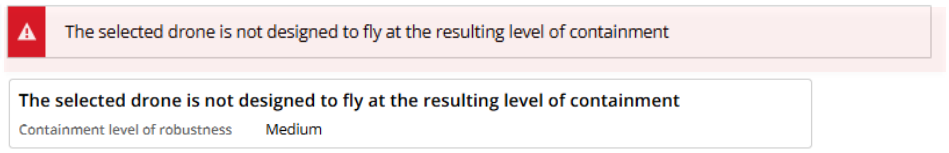
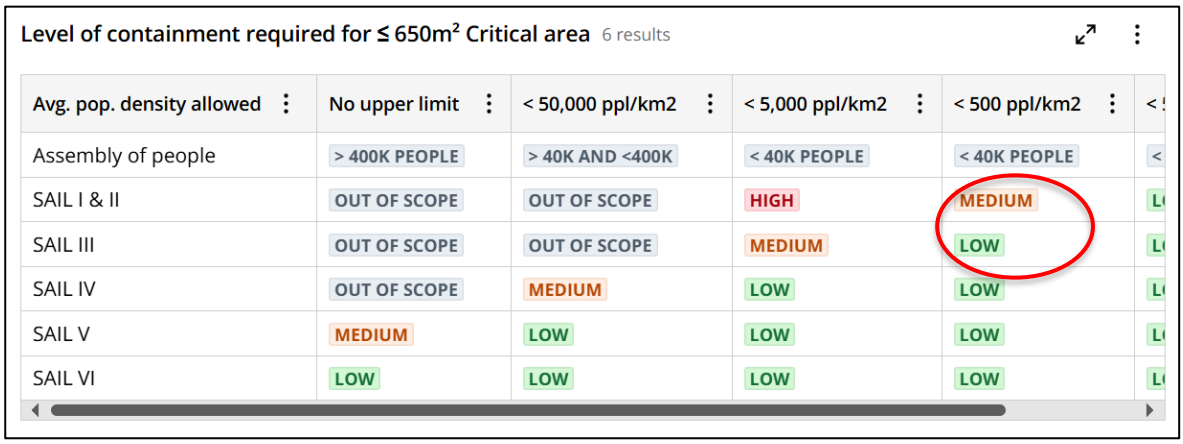
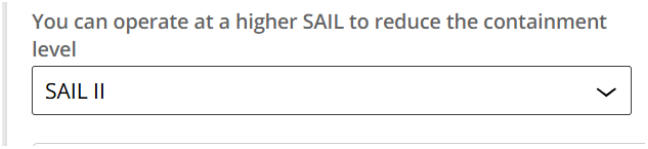


However, it may happen that your UAS was designed for operations in a higher SAIL (e.g. your operation is classified in SAIL II and the average population density of the adjacent area is <500 ppl/km2. This would result in a medium level of robustness. However, you are using a UAS that was designed for a SAIL III but has a low level of robustness. In this case you may decide to classify your operation in SAIL III (meaning that you will comply with the operational safety objectives (OSO) defined in the next step with the level of robustness defined for SAIL III.



Avg. pop. density allowed	No upper limit	< 50,000 ppl/km2	< 5,000 ppl/km2	< 500 ppl/km2	<
Assembly of people	> 400K PEOPLE	> 40K AND <400K	< 40K PEOPLE	< 40K PEOPLE	<
SAIL I & II	OUT OF SCOPE	OUT OF SCOPE	HIGH	MEDIUM	L
SAIL III	OUT OF SCOPE	OUT OF SCOPE	MEDIUM	LOW	L
SAIL IV	OUT OF SCOPE	MEDIUM	LOW	LOW	L
SAIL V	MEDIUM	LOW	LOW	LOW	L
SAIL VI	LOW	LOW	LOW	LOW	L

In this case you can use the following option and select a higher SAIL:



To proceed to the last Step #9 click **Next**.

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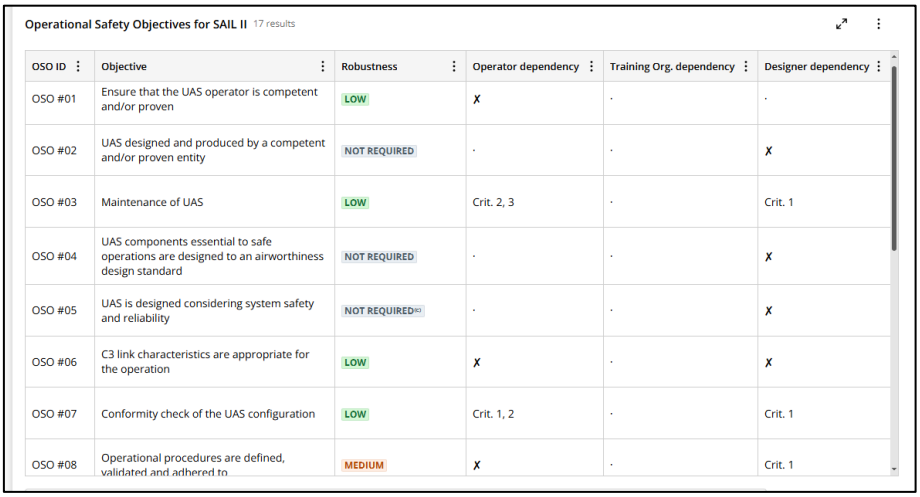
12 Step #9 Operation Safety Objectives (OSOs)

In this final step, the system will list the OSOs overview chart (operational, technical, training etc.) with the level of robustness that operator needs to apply to be able to conduct the planned operation safely.



Operational Safety Objectives for SAIL II 17 results

OSO ID	Objective	Robustness	Operator dependency	Training Org. dependency	Designer dependency
OSO #01	Ensure that the UAS operator is competent and/or proven	LOW	✗	·	·
OSO #02	UAS designed and produced by a competent and/or proven entity	NOT REQUIRED	·	·	✗
OSO #03	Maintenance of UAS	LOW	Crit. 2, 3	·	Crit. 1
OSO #04	UAS components essential to safe operations are designed to an airworthiness design standard	NOT REQUIRED	·	·	✗
OSO #05	UAS is designed considering system safety and reliability	NOT REQUIRED	·	·	✗
OSO #06	C3 link characteristics are appropriate for the operation	LOW	✗	·	✗
OSO #07	Conformity check of the UAS configuration	LOW	Crit. 1, 2	·	Crit. 1
OSO #08	Operational procedures are defined, validated and adhered to	MEDIUM	✗	·	Crit. 1

Scroll down through all lines to see all OSOs. Table also allows to screen expand

There is no input required in this step, other than declare that you will comply with the following:

Declaration of compliance

I hereby declare that the UAS operation will comply with:

- procedures to ensure that security requirements applicable to the area of operations are complied with in the intended operation;
- measures to protect against unlawful interference and unauthorised access;
- procedures to ensure that all operations are in respect of Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. In particular it shall carry out a data protection impact assessment, when required by the National Authority for data protection in application of Article 35 of Regulation (EU) 2016/679;
- guidelines for the remote pilot(s) to plan UAS operations in a manner that minimises nuisances, including noise and other emissions-related nuisances, to people and animals.

and will keep record of:

- all the relevant qualifications and training courses completed by the remote pilot(s) and the other personnel in charge of duties essential to the UAS operation and by the maintenance staff, for at least 3 years after those persons have ceased employment with the organisation or have changed their position in the organisation;
- the maintenance activities conducted on the UAS for a minimum of 3 years;
- the information on UAS operations, including any unusual technical or operational occurrences and other data as required by the declaration or by the operational authorisation for a minimum of 3 years;
- an up-to-date list of the designated remote pilots for each flight;
- an up-to-date list of the maintenance staff employed by the operator to carry out maintenance activities.

☐ This I declare *

Once declared, click **Submit** to finalize step #9.

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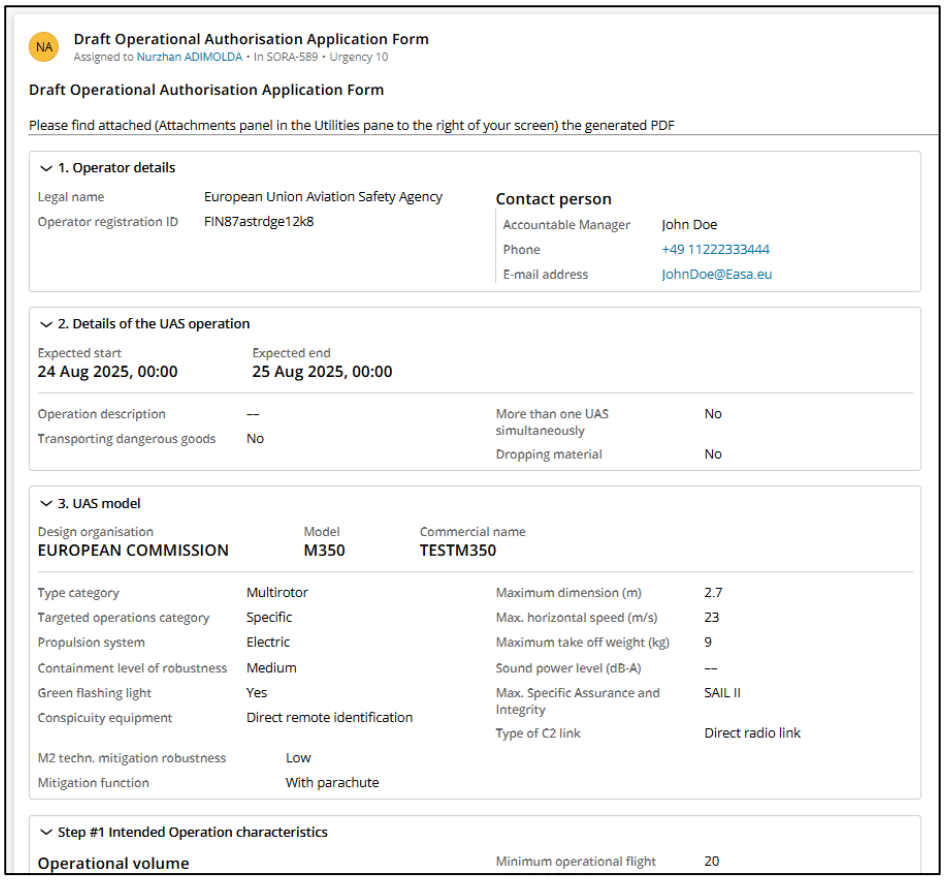
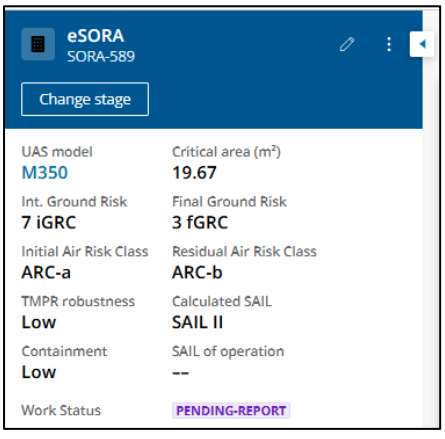
At that point, the Mitigation stage will be finished, and the progress chart will show it as completed. All risk inputs are done, SORA phase 1 is finalised. Tool will switch to Report stage.

13 Report stage

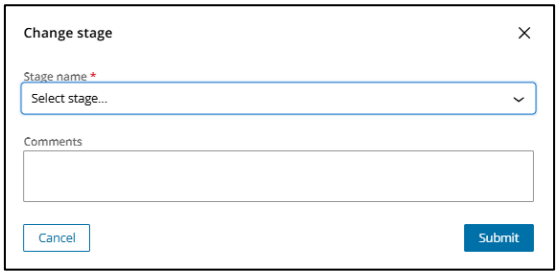
After entering the Report stage, the system will display an overview of all information provided during eSORA process. This is to provide an opportunity to review the information and verify no mistakes was made.

The information available in “read only”.





If mistakes are spotted, click “Change stage”
Case summary window and correct mistakes.
To return, use **Change stage** → **Report** → **Submit**



After reviewing the information, upload any additional documents important for the case.

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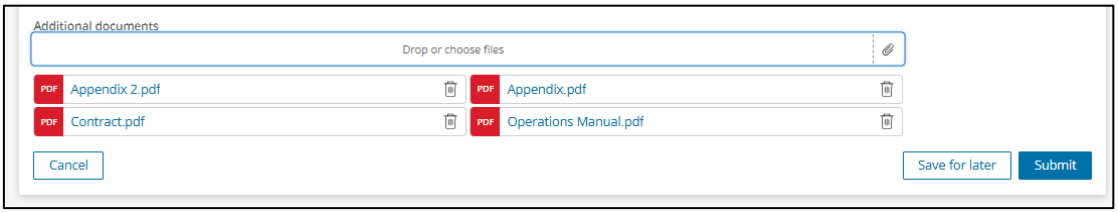
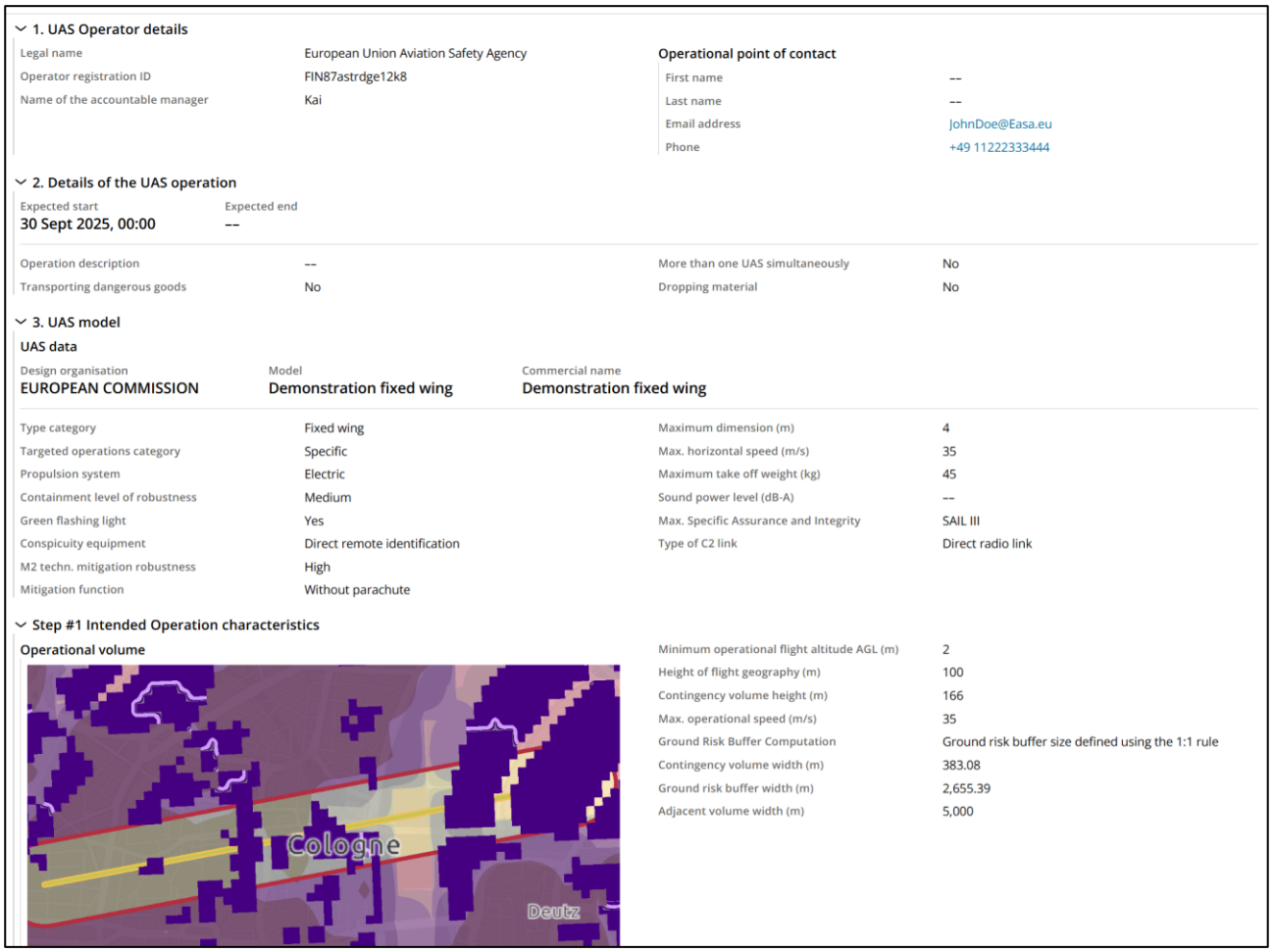


In the lower part of the screen you can find all the information gathered, organised in the format of the application for an operational authorisation form as per AMC1 UAS.SPEC.030(2)



To finalise click **Submit**

At this point, eSORA case will be completed. Work status switch to RESOLVED-COMPLETED and progress bar all stages checked.

On the Utilities-Attachment section, the system will generate a **Draft Operational Authorisation Application Form**, that contains all the details of SORA case in a format suitable for NAA review.

This draft, can be provided for NAA consideration.

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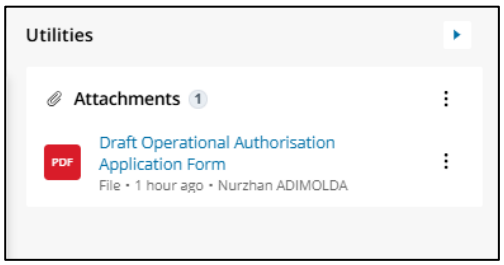

The draft application for operational authorisation, along with the evidence documentations collected, may be sent now the NAA where you are registered. The NAA will check if your mitigations are properly justified and if they concur with your final SAIL.

After the NAA has given you their agreement you may start SORA phase 2 by complying with the mitigations and OSOs and developing all the additional evidence of compliance.

This phase is not included in the eSORA, it might be in the future.

When you have completed the SORA phase 2, you can send the final application for operational authorisation to the NAA.

If you have received the operational authorisation you can register the number on the eSORA (button). If the NAA asked you to revise your application compared to the eSORA case registered, please make sure you update it accordingly and upload a copy of the operational authorisation you received.

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